

**Sino-Russian Energy Cooperation: Challenges, Opportunities and the Role of
Multilateral Organisations, 2008 – 2017**

Thesis submitted to Jawaharlal Nehru University

for award of the degree of

MASTER OF PHILOSOPHY

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2018



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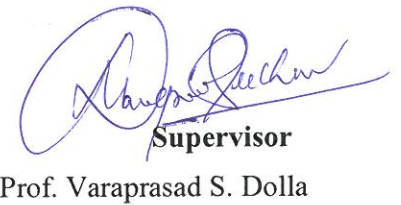
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❖ **Dedicated to my late Nani Ma and my Mummy!**

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Acknowledgements

I wish to express deep gratitude and respect to my dissertation supervisor Prof. Varaprasad S. Dolla for his dynamic guidance, useful insight, co-operation and constant encouragement throughout the course of this work.

I would like to express thanks to my friends who have supported me during the compilation of this study. I would especially like to mention my younger brother Amit, my friend from CEAS Siddharth Rai, D Nagamalleswara Rao, Parmeet Kajal, Tahera Daud, Atmaja Barua, and Kant kumar from for providing me with valuable inputs during the numerous discussions. I am also thankful to my roommate Gautam kumar and senior Anupam kumar for their constant support.

I would like to thank the teachers and staff at the Centre for the Study of East Asian Studies, Jawaharlal Nehru University, for providing their support and co-operation in carrying out this research work.

A special mention must also be made to my friend Deepika for all her support and co-operation during the whole study.

The gratitude I feel towards my family members for the pains and efforts they have taken in bearing with me during this entire study cannot be expressed in words and this is my chance to show my appreciation.

Finally, I acknowledge the contribution of each and every individual who has helped me in compiling this dissertation in its present form.

AJIT KR. PASWAN

List of Abbreviations

AQSIQ	Administration of Quality Supervision Inspection and Quarantine
ASEAN	Association of Southeast Asian Nations
BCM	Billion cubic meters
BIMSTEC	Multi-Sectoral Technical and Economic Cooperation
BRI	Belt Road Initiative
BRICS	Brazil, Russia, India, China and South Africa
CBRC	China Banking Regulatory Commission
CCS	Carbon Capture Storage
CDB	Chinese Development Bank
CIC	China Investment Corporation
CIC	China Investment Corporation
CICA	Conference on Interaction and Confidence-Building Measures in Asia
CIS	Continued Improvement Scenario
CIS	Commonwealth of Independent State
CNPC	China National Petroleum Corporation
CPNGC	China Petroleum and Natural Gas Corporation
CSRC	China Securities Regulatory Commission
CSTO	Collective Security Treaty Organization
ECO	Economic Cooperation Organization
EEU	Eurasian Economic Union
ERI	Energy Research Institute, whose recent
ESPO	Eastern Siberia–Pacific Ocean oil pipeline
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
IEA	International energy Agency

LNG	Liquefied Natural Gas
MIIT	Ministry of Industry and Information Technology
MOF	Ministry of Finance
MOHURD	Ministry of Housing and Urban-Rural Development
NATO	North Atlantic Treaty Organization
NDRC	National Development and Reform Commission
NEA	National Energy Agency
NEC	National Energy Commission
NGV	Natural gas vehicle
OPEC	Organization of the Petroleum Exporting Countries
PBC	People's Bank of China
RATS	Regional Anti-Terrorist Structure
RCIF	Russia-China Investment Fund
RDIF	Russian Direct Investment Fund
SAARC	South Asian Association for Regional Cooperation
SAC	Standardization Administration of China
SCO	Shanghai Cooperation Organisation
SERC	State Electricity Regulatory Commission
SOA	State Oceanic Administration
SRENM	Sino- Russia Energy Negotiation Mechanism
TCE	Tonne of Coal Equivalent
UN	United Nations
USA	United States of America
USSR	Union of Soviet Socialist Republics
VEB	Vnesheconombank
WEPP	West-East Gas Pipeline Project
WTO	World Trade Organization

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Chapter-1

Introduction

1.1 Background

The economic development of the world, particularly in some of the developing countries has led to an increasing demand for energy. Oil and gas, besides other factors, do play a vital role in this process. Therefore, acquiring energy resources is important for all countries, be it a developed or a developing country. In the current scenario, security and culture. In the global context, the amount of energy used by a country indicates its position in energy politics. Though, energy availability is uneven in the world, there is geographical advantage for certain countries and regions like Russia and West Asia and Central Asia. However, this issue is addressed through cooperation as seen between several countries including China and Russia.

The rapid growth of China's economy and its demand for energy resources pushed China's policy makers to lookout for more diverse sources of energy. Therefore, China looked towards Russia as a reliable partner for energy security. On the other hand, Russia has huge reserves of natural gas and other forms of energy resources. For a long time, Russia relied on European markets for its energy exports. Given the recent differences between Russia and some European countries, Russia's quest to diversify its energy market has been increasing and it is eagerly looking at East Asia, particularly towards China. Thus, China's growing market for energy consumption and rapid economic development naturally attracted Russia. Consequently, both China and Russia complement each other in economic and political terms. They both are motivated by their own needs and requirements to come together. Their mutual understanding is, therefore, helpful for strengthening their strategic partnership.

Energy cooperation works out well for China for the following factors. First, diversification of Chinese energy basket. Second, access to Russian energy markets is easier for China due to geographical proximity. Third, cordial relations with Russia also leads to avail the opportunities in Central Asian energy market with Russia's cooperation. For Russia, the foremost aspect of this energy relationship is assistance provided by China in building its

infrastructure. On the other hand, the energy cooperation presents a new opportunity for China for further investments in Russia. Mutual cooperation in the energy sector is paving the way

for sustainable economic development of both the countries. Energy cooperation is playing a significant role in the development of trade, investment and infrastructure of both the countries. In the wake of series of financial crises and sanctions imposed by the United States and the European Union and its allies further weakened Russian economy. In the present context, Russia focused on strengthening its cooperation with China. It is also evident that such cooperation may face challenges from other countries. China and Russia are striving to find appropriate ways to counter these challenges and to deepen bilateral relations at every possible level. China emerged as the second largest economy due to its rapidly growing manufacture sector which is energy driven. Therefore, China-Russia energy cooperation is a mutually beneficial cooperation. Projection of China-Russia energy cooperation at larger level is a fruitful deal for both the countries. This cooperation is leading to better economic cooperation in the two countries in other realms as well, thus further consolidating political relations between the two. Therefore, China-Russia's strategic cooperation has a very optimistic future.

There are also some constrains to China-Russian energy cooperation such as market challenges, political risks, geographical issues. To address these challenges both countries are striving to evolve institutional mechanisms that can be effective as well as operational, which can ensure better mutual trust and expansion of cooperation between the two.

Against this backdrop, the study on Sino-Russian energy cooperation examines and analyses both countries' strategic and policy frameworks towards energy cooperation. The main thrust of policy is to establish a fruitful bilateral cooperation. This study focuses on the existing context of Sino- Russian relations, in terms of energy resources and security. It also focuses on the strategies of investments that include the role of manufacturing sectors in the development, enlargement process, subsidy, condition of investment, accordance for the effectiveness of cooperation besides the impact of cooperation on their domestic societies and the global community.

1.2 Review of the literature

Literature on the economic and political relations between China-Russia have been examined by several scholars. Work on China's energy scenario and Russia's role in boosting it is available. But when it comes to aspects like energy cooperation, the availability of literature is limited. The review of literature is divided into three sections. It is broadly categorised as Chinese and Russian approaches to Energy Cooperation, China's policy vis-à-vis energy resources in Russia, and the Role of multilateral organizations in energy cooperation.

Energy Cooperation: Chinese and Russia Approaches

Tatiana Sidorenko in her article "The Scope of Economic Cooperation between Russia and China and Future Prospects" (2013) highlights economic cooperation between China and Russia focusing on bilateral trade and investment as well as achievements. The nature of cooperation between two countries is structured in a way that Russia exports hydrocarbons to China, in return China exports mainly manufactured products besides giving financial support. Russia seeks to diversify its exports to China. Tatiana explains that Russia's increasing interests in China are determined by the following factors; First, the common border over 4,300 km, Second, reliable and growing market of China, Third, China is the largest energy consumer since 2010. Finally, the Treaty of Good-Neighbourliness and friendly relations between both countries. The structure of Sino-Russian trade mainly relates to hydrocarbons, fertilizers and arms. Russian exports to China also include oil, coal, wood, and gold thus Russia is an exporter of resources to China. China exports a variety of products ranging from cheap to luxury goods such as machinery and transport equipment. Energy cooperation has strengthened bilateral trade between both countries.

In "China and Russia: On the rise and decline of two nations" (2013) Erich Weede compared economic and political conditions of both the countries. In 1970s the size of the Soviet Union economy vis-a-vis China was 4:1 and it became 1:4 in 2001. This economic decline was caused by several events such as the collapse of Soviet Union, absence of structural reforms in small and medium enterprise sectors, less participation of Russia in globalisation process, On the other hand, China decollectivized agriculture, developed Special Economic Zones and Township Village Enterprises, opened its economy while

preserving federalism. Politically, the author highlights that Russia could not be a global power without a globalised economy. No doubt China managed to ensure economic stability but in hard power capabilities, it could not develop high-end weapons as Russia has. The enduring peace between the two countries is ensured by trade, growth and shared prosperity. With the rapid growth of Chinese economy, its dependence on oil and gas and other energy resources increased over the years. The level of cooperation and availability of energy resources in Siberia attracts Chinese companies to reduce the risk factor. The current Chinese foreign policy's main aim is to gain economic sustenance.

Silvana Malle in "Russia and China in the 21st Century: Moving towards cooperative behaviour" (2017) argues that economic and political cooperation between both countries cover various fields like energy, arms production, trade in national currencies and strategic projects in transport and infrastructure development. China is framing policies to gain access to European market through Silk road. The One Belt, One Road aims to supplement the maritime routes by accelerating transportation, which it feels are less safe, and threats posed by littoral states, piracy, and provocative attitude of the United States in the South China Sea. On the other hand, Russia has a friendly approach to Chinese investment, pushing eastward to improve influence it's in East Asia. At the same time, China is forging strong relations with Central Asia at multilateral platforms. Though, there is disagreement between the two countries regarding the Eurasian region, they agreed to resolve it through dialogue, and took certain steps at Shanghai Cooperation Organisation (SCO). Silvana also examined the coming together of both the countries despite political and economic contestations and showed optimism to improve cooperation and find areas of collaboration. Both agreed to maintain balance and both are participating in negotiations and deals and framing a strategy to counter obstacles to move forward.

In "Pipeline to Nowhere: The Beijing- Moscow Dance Continues" (2012) Stephen Blanke discusses how oil and gas pipelines influence revenue system and budgeting processes Beijing and Moscow. Hydrocarbons determine the direction of the strategic relationship between the two. Russia has huge reserves of hydrocarbons and China is need of those reserves. The author highlights that Russia would use its natural energy resources to attract investment. Russian oil and gas company Gazprom has various plans to install pipeline

network to export gas from Eastern and Western Siberia to the other countries in Asia by 2020. Gazprom has financial limits thus it had to depend either on the joint development or foreign direct investment. It is likely that most benefit would go to China from this project. According to this project, Russia would build a network of gas pipeline, gas plants from Sakhalin that would help Russia to depend on China's gas market till 2030. In 2008, Russia produced less gas than planned, so Gazprom had to limit its sale to China. In 2011, both countries postponed a gas deal to supply Siberian gas to China due to price unsettlement.

Voskresenskii. A.D. highlights in *Russia and China: A Theory of Inter-State Relations* (2002), a new aspect of China-Russia relations. His innovative 'multifactor equilibrium,' an integrative framework for analysis, which aims at a complex correlation between politics and economics, and security and economics is quite relevant for our understanding of Sino-Russian energy cooperation. He also introduces another aspect of correlation: an amalgamation of power and culture, economics and security to assess Sino-Russian relations. Voskresenskii argues that any approach that has a single framework for analysing the history and present condition in Sino-Russian cooperation is inadequate and therefore underscores multi-factor equilibrium, which provides a holistic framework.

China's Policy Vis-à-vis Energy Resources in Russia

In "The role of Russian gas in China's energy supply strategy" (2013) KeunWook Paik mainly assesses China's industry and its rapidly expanding demand for energy; The author discusses how Russian gas would help China in meeting the growing demand. KeunWook Paik also explains Russia's approach which includes the strategy of dependence on the Chinese market. Russia's pipeline gas export to Chinese industry would play a significant role in China's energy supply in the coming decades. It would also expand and balance Chinese pipeline gas import from Central Asian Countries. China, in reality, does not show any rush to accept Gazprom's price that it fixed for European countries. According to Chinese Energy Policymakers, the price of Russia's gas import by pipeline is too costly. Russia is in a hurry to show China that Russia's Asia policy can be operational without making the price adjustment for setting up the pipeline. It led to more competition for LNG supplies not only between LNG importers in the Northeast but also for buyers of LNG in

this area as well as in Europe. The decline in Sino- Russian gas relationship would dispossess both countries' a 'win-win' solution to their energy and growth issues and enhance future world competition in the market for LNG.

Xia Yishan in "China-Russia Energy Cooperation: Its Present Situation and Prospect" (2007), analyses various factors and phases of energy cooperation between China-Russia. China's growing demand for oil and gas deepens this cooperation. This demand drives China to consider Russia as a major supplier. As a result, in 2006, the construction of pipeline began in a full-fledged manner. The pipeline construction has three stages. The first phase, stretched from 1994 to 2001. Witnessed China being less active than Russia. Russia had shown extra interest in this cooperation because it wanted to overcome its economic crisis. The Second spanned from 2001 to 2003. During this phase, China became more active. The last phase marked from 2004 to the present wherein we find both are trying to firm up the project. Xia highlights the main factors in the development of energy cooperation. One of the main factors is accomplishing the national interests of the both countries. China emerged as a promising market, and on the other hand, Russia is planning to be a reliable and stable supplier for China. In 2004, during President Putin's visit to China, twelve agreements were signed which included China-Russia Supplementary Agreement on the Eastern Section of China-Russia border, and also planned the implementation of China-Russia Treaty of Good-Neighbourliness and Friendly Cooperation and bilateral energy cooperation.

Theresa Fallon in "The New Silk Road: Xi Jinping's Grand Strategy for Eurasia" (2015) examines the role of President Xi Jinping in formulating China's foreign policy on the basis of geopolitics. His vision of New Silk Road Economic Belt and the 21st century Maritime Silk Road to connect China to Europe comes under China's Greater Neighbourhood Policy. His strategic move includes "energy; security; and markets". He worked hard to bring a policy which addresses the vital challenges from maritime and western neighbourhood through 'Belt and Road Initiative'. The relations between Russia and the West have declined due to domestic and international issues. The "Strategic Partnership" (1996), between China and Russia has facilitated them to come closer. "Euromaidan" event in Kiev occurred between November 2013 and February 2014 wherein Russia annexed Crimea and

encouraged separatists in Eastern Ukraine part has widened the gulf between Russia and the West. Given this, President Vladimir Putin focused on eastward expansion and policymakers also worked on the same direction and made changes in the foreign policy.

Leonty Eder et al. in “Russia’s Evolving Energy Policy for its Eastern Regions and implications for oil and gas cooperation between Russia and China” (2009) highlight a historical approach to answer how and why both countries at times came closer and other times maintained distance. In the 1950s Soviet Union provided technology and skill to China but from 1958 relations between the two countries begun to decline. After the dissolution of Soviet Union, Russia, as well as other independent states made changes in their foreign policy. By the mid-1990s, the situation has completely changed. Both countries have understood that the construction of pipelines for gas and oil is very important. These initiatives led to many important projects like the construction of a pipeline to export oil and gas to China. Since 2004, energy cooperation between China and Russia took off, and by the mid of 2009 some advancements have been made on the ground. Energy cooperation set a new trend, that a modern attitude of convergence between China and Russia regarding their priorities in various sectors of the economy. It has strengthened cooperation between the two countries because it was critically important for both as a producer and as a consumer. Therefore, cooperation is established independent of political values and issues of identity. Further, they examine the expansion of Russia’s domestic energy policies and their role in gaining speed and growth of natural oil and gas cooperation with China.

This article provides a brief description about the initial agreement for exporting oil through pipelines to China under President Yeltsin’s leadership. In 2000, when Vladimir Putin became President, he agreed to the proposals on how to achieve progress in various fields of cooperation.

In “The Russia-China Gas Deal: Implications and Ramifications” (2014), Richard Weitz brings to light some of the major consequences of cooperation between the two countries. There are several issues that influence export of energy resources to China. There is also a disagreement on price as well. China seeks to purchase Russian gas that is comparatively low priced. As President Putin stated in his speech after signing the Sino- Russian gas deal,

his main concern was that there is growth in the consumption of gas in Europe but yet economic growth remained low besides the political and regulatory implications. According to the situation Russia wants to open up new markets, these markets have first preference to sell energy to the fastest growing Asian energy markets, mainly to China, Korea and Japan. It is estimated that energy demand in Asia advances two-fold by 2035. Russia wants to use this developing market to benefit from the geopolitics of this region. These countries are keen to provide financial support to Russian energy companies. Russia is trying hard to rebalance trade relations with China with an eye on expanding bilateral trade covering hydrocarbon, high-value products, advanced technology. Further Russia is looking for more investment in biotechnology, nanotechnology, and aviation manufacturing. China's technological and financial support can be beneficial in this process.

Wei Du in "China's Oil and Gas Policy in 2010" (2011) analyses the outline of "11th Five-Year Plan" and "12th Five Year Plan". For her, the "11th Five-Year Plan" witnessed a major reform in its oil and gas policy. It began to fix the price of oil and gas according to market demand. "12th Five Year Plan" mainly concentrates on strengthening and improving the management of energy industry, financing and taxation systems, price reform of oil and natural gas, improving the process of energy saving and reduction of emissions, low carbon arrangement and development of non-conventional energy.

In "The Dash for Gas: The Golden Age of an Energy Game-Changer" (2012) Tom Gjelten explains the role of natural gas in world politics. For him, natural gas trade plays a prominent role in shaping geopolitical trends. Storage of gas from Asia to North America determines the arrangement of international dynamics. Natural gas attracts energy consumers because it is affordable and transported efficiently. As China is keen to access Shale gas to achieve target of using ten percent shale gas by 2020 to stop relying on coal. Gjelten also provides comparative analyses of demand and use of natural gas worldwide. According to International Energy Agency (IEA), in the next twenty-five years gas would be rapidly growing as primary commodity of energy. Thus, experts and energy intuition such as IEA says that it overtakes coal by 2030. Newly designed vehicles are compatible for gas exportation, as per IEA the world is heading towards "a golden age of gas". The

energy cooperation in gas is emerging as a key component in the international politics. The energy source can be a factor in winning and losing in the world arena. Therefore, energy cooperation strengthens existing geopolitical as well as environmental scenario of China.

Role of Multilateral Organizations in Energy Cooperation

Yu Bin in “The Russian – Chinese Oil Politik” (2003) argues that China and Russia maintained close partnership in establishing Shanghai Cooperation Organisation (SCO). Both work together in the SCO to strengthen multilateral economic cooperation. Therefore, they emphasize on developing free-trade zone. Members of the group had agreed on “Outline of Multilateral Economic and Trade Cooperation of the SCO” with the primary purpose of promoting economic growth. Yu Bin also highlights how Severe Acute Respiratory Syndrome (SARS) affected bilateral trade very severely. However, after the epidemic, SCO countries reopened all checkpoints and border to manage losses incurred during the SARS crisis.

Andrey S. Golobokov in “Various forms and mechanisms of Chinese-Russian cooperation in the energy sphere and the role of nongovernmental structures” (2015) examines the role of Shanghai Cooperation Organization (SCO) and ‘Energy Club’. Multilateral cooperation deals in Central Asia enhanced trade between China and Russia under the framework of SCO. The Energy Club has the main goal to strengthen integration with Eurasian energy policy. This article analyses various policies and strategies of China and Russia and other states. Energy collaboration is a fundamental element of Russian diplomacy in SCO. China–Russia Cooperation constitutes a significant part of SCO. Andrey views that China needs SCO for economic integration in the region. But for Russia, this organisation is important from the security point of view. Energy Club has the main goal to find out better energy strategy scope for security and help in implementing joint projects to address SCO for energy. Andrey highlights the role of Energy Club as an energy supplier to countries and consumers. It acts as a coordinating body that offers development of economic and energy cooperation between states and companies. It also creates an atmosphere of openness, reliability in discussing economic and legal issues and creating a favourable situation for the exchange of views regarding methods of resolution. The implementation

of the SCO energy policy plays a significant role in achieving sustainable growth of the member countries of this organisation.

1.3 Definition, Rationale and Scope

Bilateral interests between China and Russia have played a key role in strengthening their strategic relationship and fostering energy cooperation. This cooperation has both political and economic connotations. For China, it helps to quench its demand for energy to sustain its industrial and manufacturing sector. On the other hand, for Russia this cooperation with China helps it to find an alternative market to the Western world and find a mechanism to negate the sections thrust upon it by the West. This provides support to its economic sustainability as well. However, energy cooperation between them demands certain basic requirements like the availability of sufficient energy resources, development of well-ordered and well-connected transportation systems and a stringent security arrangement.

China's technological and economic prowess do facilitate Russia accomplish extracting the energy resources and export. Therefore, the rationale of this research is to highlight and analyse various facets of China-Russia energy cooperation with a focus on political, economic, and strategic dimensions. This research covered the timeline from 2008 to 2017, the onset of 2008 Global Economic Crisis and the launching of the Sino- Russia Energy Negotiation Mechanism (SRENM).

1.4 Hypotheses

1. China and Russia have distinct and divergent interests in their energy cooperation, complementing China's energy security requirements and Russia's economic security needs.
2. Sino-Russian energy cooperation has been playing a significant role in the growth of trade besides facilitating opportunities for investment and infrastructure development.
3. External pressure has forced Sino-Russian energy cooperation, thus deepening strategic partnership through multilateral mechanisms.

1.5 Research Questions

1. How have political and economic interests of China and Russia been structuring and shaping energy cooperation between the two?
2. What role does the China-Russia energy cooperation have in ensuring China's energy security?
3. How did the external pressure in the form of Western sanctions, financial instability play a role in this cooperation?
4. What is the place of multilateral organizations like SCO and BRICS in fostering energy cooperation between China and Russia?

1.6 Research Methodology

Deductive method is applied in this research. It is empirical in nature. In this study, primary as well as on secondary sources are used. The primary sources include the official reports of the two governments besides the bilateral agreements and documents signed at the multilateral organisations like SCO and BRICS. The secondary sources include books, articles, journals and newspaper articles.

In this study, China's energy demand remains independent variable, China-Russia economic cooperation is a dependent variable, and intervening variables are external pressure on Russia, the growth of China's energy market as well as Russia's economic situation.

1.7 Structure of the Study

The first chapter provides background, rational of the study, literature review, research questions, hypotheses, methodology, and the outline of the study.

In the second chapter, the theoretical framework of 'Heckscher–Ohlin' is discussed to assess Sino-Russian energy cooperation. Their policies, which are shaping energy cooperation, bilateral negotiations, security arrangement of energy and development of transportation system for export and Chinese investments to develop infrastructure in Russia form part of the chapter. Finally, it examines how both countries have been diversifying export and import strategies.

Chapter three examines the current direction of energy cooperation including trade and investment between China and Russia. There are many issues which are confronting both countries to accelerate energy cooperation. Thus, current issues, major risks and opportunities of this cooperation are part of the chapter.

Chapter four discusses the role of the multilateral organisations in the China-Russia energy cooperation. Multilateral organisations such as SCO and BRICS provide a robust platform for negotiations and agreements. Therefore, it documents talks and plans strengthening cooperation.

The concluding chapter highlights the importance of Sino- Russian energy cooperation focusing on how both the countries have been benefiting from such cooperation. Some of the major conclusions and findings of the study form part of the chapter.

Chapter-2

Sino-Russian Energy Cooperation: Theoretical and Strategic Context

2.1 Introduction

Energy has been playing a vibrant role in contributing to the evolution of human civilization. Its importance is manifested in modern society and the current phase of globalisation. In the international power games, it acts like one of the essential strategic tools. It is also a catalyst in stimulating economic efficiency, infrastructure innovation, transformation of society and brings prosperity to the nations and society. Following this general pattern energy has played a key role in China's development over last few decades. China's rapid development has also led to the status of the largest energy consumer at global level. This expansion has amounted to extensive consumption of energy in China, which resulted in the depletion of energy resources on a large scale. Nevertheless, China has responded to these challenges with innovation of technology, promulgating new policies and strategies, diversification of energy imports and maintaining balance between consumption and production. The opening up of China in the 1970s paved the way for policy reforms in the energy sector. Stable energy supplies from within and without contributed immensely to the growth of China's manufacturing sector. China's holistic approach of maintaining balance between development and its consequences, has hastened Chinese government to respond to exploitation of fossils, ecological imbalance issue and increased pressure on energy supplies.

China's domestic energy exploitation and mounting energy demand prompted the idea of energy collaboration. This idea played an imperative role in China's energy diplomacy. It has propelled China towards energy-rich countries and regions like Russia, Central Asia, West Asia etc. Energy cooperation has also strengthened China's relations with these countries and regions, specifically relations between China and Russia. The energy partnership between the two countries started flourishing in the 1990s. A number of agreements were signed between "1994 and 1996 and finally a Treaty of Friendship and Cooperation was signed in 2001. In 2012 comprehensive strategic partnership of cooperation (the Strategic Partnership 2012) was signed underlining the principles of mutual benefit, mutual trust, and equality in addition to setting specific economic targets

in China-Russia bilateral relations.” (Savic 2016:1). Chinese President Xi Jinping during the commemoration of the 15th Anniversary of Treaty of Good-Neighbourliness and Friendship observed the significance of the Sino-Russian relations in the following manner: “15 years after the signing of the treaty, President Vladimir Putin and I have made new plans regarding the in-depth development of bilateral comprehensive strategic partnership of coordination on the basis of the notion of generations of friendship set in the treaty. We will take the joint celebration of the 15th anniversary of the signing of the treaty as an opportunity to maintain close high-level exchanges and strengthen mutual support. Devoted to building shared border regions into a strong bond for bilateral friendship and cooperation, we will together safeguard peace and tranquillity in border area and actively launch cooperation in the region. We will deeply advance the alignment of both development strategies and step up cooperation in the docking between the "Belt and Road" and the construction of the Eurasian Economic Union. We will vigorously carry out people-to-people and cultural exchanges so as to pass down the long-standing friendship from generation to generation. We will staunchly safeguard the purposes and principles of the UN Charter and basic norms of international relations, strengthen international strategic collaboration and push forward the international order towards a more fair and reasonable direction so as to safeguard world peace, security and stability” (Xi Jinping 2016). It was reported that the Chinese President acknowledging their bilateral relations at “best time in history,” (*Xinhua* July 2017). China has formulated a number of policies while opening up its economy which provides conducive atmosphere for foreign investment. China has stressed on free trade agreement, cost cutting on various products, minimize transportation tariffs like law on foreign Investment Enterprises and laws on the Sino-foreign cooperative joint ventures. China’s constant amendment in policies and schemes deepen energy cooperation with Russia.

At the same time, Russia’s energy stockpile fits into Chinese energy strategies which attempts to direct energy diplomacy towards enhancement of foreign investments and economic sustainability. Chinese government finds Russia as a reliable, durable and friendly country which can provide ample amount of energy for its manufacturing sector.

Sino-Russian energy cooperation is based on the guidelines of international energy cooperation like mutual benefit, equality and reciprocity. These principles prepared the ground for both to participate in the development process of infrastructure, achieving energy security, improving trade and services sectors. As a result, Chinese and Russian governments had actively participated in bilateral negotiations and dialogues which have shaped Sino-Russian energy cooperation in the right direction, establishing favourable condition for cooperation. Further, as energy transportation includes exporting, importing which also involves transiting countries, their interests are factored into the bilateral cooperation. All the contentious issues are resolved through strategic dialogues at various bilateral and multilateral negotiations and talks. The Sino-Russian energy cooperation encompasses political, financial and ecological concerns.

Against this brief backdrop, the chapter is divided into the following sections. The second section, examines the theory of ‘Heckscher-Ohlin model’, and international trade authenticating China’s realistic approach to the collaboration.

The third section assesses the energy policy and strategy of China. The fourth section highlights the energy policy of Russia. Analysis of various projects like, the natural gas project of Kvyktin, Urengoy gas project, Chayanda gas field, Altai project, besides its challenges and reliability form part of the fifth section. The last section summarizes the key arguments of the chapter.

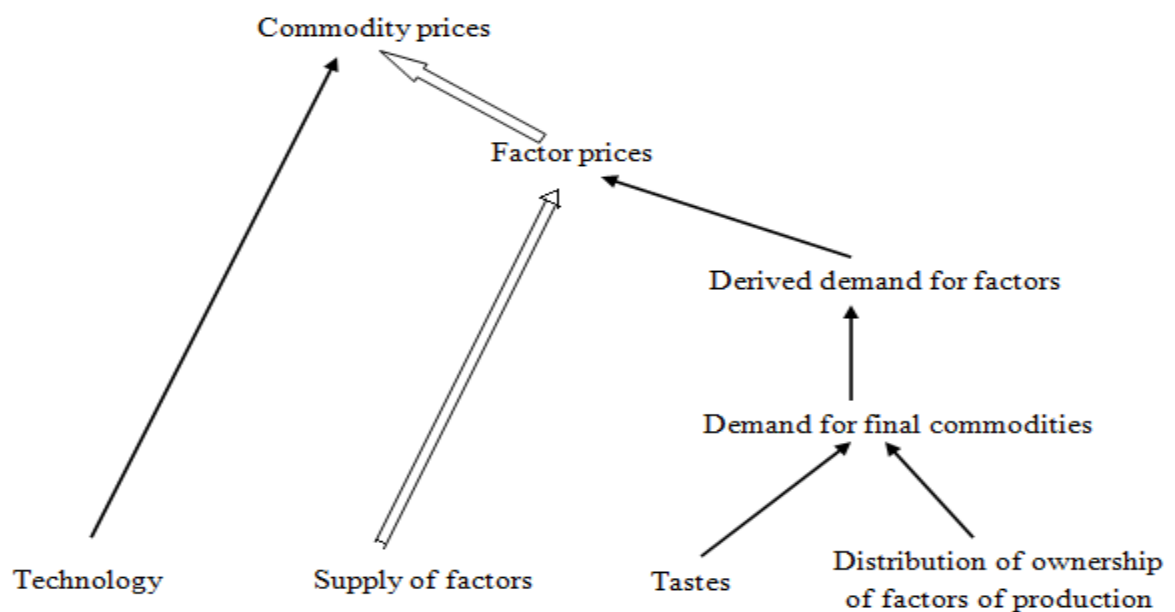
2.2 Theoretical Approach

‘The Heckscher- Ohlin model’ is formulated on the basis of ‘a general equilibrium mathematical model of international trade’. This theorem observes that “a nation will export the commodity whose production requires the intensive use of the nation’s relatively abundant and cheap factor and import the commodity whose production requires the intensive use of the nation’s relatively scarce and expensive factor” (Salvatore 2014). Its basic proposition is “each country exports the commodity which uses the country's more abundant factor more intensively” (Gandolfo 1986:76). This Heckscher–Ohlin Theorem explains that “countries export those commodities which require, for their production, relatively intensive use of those productive factors found locally in relative abundance. The twin concepts of relative factor intensity and relative factor abundance are most easily

defined in the small dimensional context in which the basic theory is usually developed. Two countries are engaged in free trade with each producing the same pair of commodities in a purely competitive setting, supported by constant returns to scale technology that is shared by both countries. Each commodity is produced separately with inputs of two factors of production that, in each country, are supplied perfectly inelastically.” (Jones 2018: 388).

This theory plays a vital role in understanding the mode of cooperation between two nations as “a capital-abundant country will export the capital-intensive goods while the labour-abundant country will export the labour-intensive goods.” (Suranovic 2006). In the international trade, every country has a particular endowment factor and abundant factor of production which differs from the others. The difference in the availability of products creates the condition of cooperation. Requirement of particular goods derive the direction of cooperation, which is a key factor of development in international trade.

Figure 2.1 General Equilibrium Framework of Heckscher -Ohlin Theory



Source: Salvatore, D. *International Economics (10th Edition)*,

Salvatore argues that “at the lower right-hand corner of the diagram, we see that that the distribution of ownership of factor of production or income and tastes determines the

demand for commodities. The demand for factors of production is then derived from the demand for final commodities. The demand for and supply of factors determine the price of factors. The price of factor and technology determine the price of final commodities. The difference in relative commodity prices among nations then determined comparative advantage and the pattern of trade. Figure 2.1 shows how all economic forces jointly determine the price of final commodities” (Salvatore 2014).

In understanding the Sino-Russian energy cooperation, ‘Heckscher-Ohlin model’ is very relevant. It provides a clear analysis of energy price, utilization of technology for energy extraction and the development of infrastructure. Russia’s size of energy basket is enormously different from that of China. The oil and gas resources in China are quite limited. Additionally, China is an immensely populated country, it’s consumption level is rising very rapidly and the accelerated economic growth consistently requires a large amount of energy. Furthermore, geographical distribution of energy resources, rising consumption of existing energy resource adds difficulties in the development process. China’s massive energy demand has few epicentres such as southeast and other manufacturing zones. Coal, which is vastly used among conventional energy, is largely available in the northern regions. These regions are located very far from industrial areas. Moreover, excessive use of coal has its own ramification on environment. There is acute necessity of infrastructure and technology for widening the exploration. Therefore, China needs support from other neighbouring countries to full-fill its demand. China imports huge amount of energy from West East and Africa through sea route, Malacca strait which is considered very unsafe is also creating risks for China’s energy supply.

In terms of energy partnership, there is more scope for growth because China and Russia are committed to mutual benefit. China’s industries are dependent on Russia because of its location and, geographical proximity, economic growth and infrastructure development process. Russia is a leading member of energy exportation in the global energy market. Russia is also developing its energy production at a vast scale. Geographical advantage makes Russia one of the top exporters of energy at the global level. Its abundant natural resources make it a major player in the energy market. It plays a very significant role in determining tariff rates of oil and gas. In addition, Russia’s economic revitalisation ensures

a substantial growth. In the coming decade, Russia will rapidly increase its oil and gas production. Consequently, the Heckscher–Ohlin theorem clearly elucidates China and Russia’s massive energy endowment difference and cooperation.

The various international energy agencies measured the energy consumption rate of China and estimated future demand to assess the vulnerability of Sino- Russian energy cooperation. For instance, like International energy Agency (IEA) conducted a study and some of the findings are highlighted in the Figure below.

Figure 2.2. Estimated Energy Consumption of China in Percentage

Energy Consumption projected in China by type in 2008 in percentage. Energy Consumption projected in China by type in 2020 in percentage

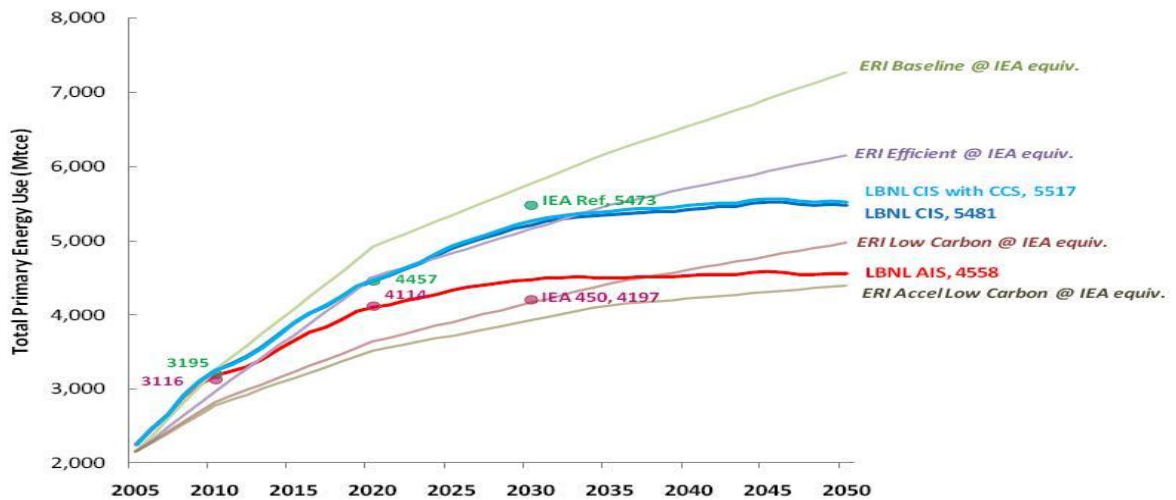


Source: *Compiled from EIA InternationalEnergy Annual 2006 and China Statistical Yearbook,2009:48.*

EIA International Energy Annual Report estimated the consumption of energy basket - coal, natural gas, oil, nuclear energy, hydro energy and wind energy is going through a major paradigm shift. The study also highlights that consumption of natural gas and nuclear energy would increase drastically.

There is a similar study conducted by IEA regarding China’s primary energy consumption that has estimated for 2050.

Figure 2.3. “Primary Energy Consumption in Different Scenarios”



Source: *China’s Energy and Emissions Outlook to 2050: Perspectives from Bottom-up Energy End-use Model*, Volume 53, February 2013: 13.

“Note: AIS is Accelerated Improvement Scenario, CIS is Continued Improvement Scenario, ERI is China Energy Research Institute, whose 2009 study results have been converted to IEA-equivalent figures given that ERI follows the convention of using power generation equivalent, rather than IEA and LBNL’s use of calorific equivalent, to convert primary electricity (CEACER, 2009). This conversion of ERI results to the IEA/LBNL convention reduces the gross energy content of electricity generated from renewables and biomass by 66%. IEA results are taken from *World Energy Outlook 2009*.” (*China’s Energy and Emissions Outlook to 2050*, 2013:13).

This study mainly assesses the consumption of primary energies. By 2050, “China’s primary energy consumption will rise continuously in both scenarios but approach a plateau starting in 2025 for AIS and 2030 for CIS (Figure 2.4) Energy demand grows from 2250 million tonnes of coal equivalent (Mtce1) to 5500 Mtce (161 EJ) in 2050 under CIS. It is reduced by 900 Mtce to 4600 Mtce in AIS in 2050, a cumulative energy reduction of 26 billion tonnes of coal equivalent from 2005 to 2050. If sufficient carbon capture storage (CCS) capacity to capture and sequester 500 Mt CO₂ by 2050 was implemented under the

CIS scenario, total primary energy use would increase to 5520 Mtce in 2050 due to CCS energy requirements for carbon separation, pumping and long-term storage, but carbon emissions would decline by 4% in 2050. (China's Energy and Emissions Outlook to 2050: Perspectives from Bottom-up Energy End-use Model March 2013:12). Therefore, the current and future relations are significantly influenced by energy consumption of China.

In addition, Sino-Russian energy cooperation is also shaped and structured by 'Realist theory of International Relations.' This theory talks about the role of the state, national interests and world politics in shaping national policies. This cooperation concurs with the realist approach, and its main tying node is reciprocal profit. Max Weber observed, "Interests (material and ideal), not ideas, dominate directly the actions of men. Yet the "images of the world" created by these ideas have very often served as switches determining the tracks on which the dynamism of interests kept actions moving." (Turner and Factor 2006:173). China and Russia are concerned about their interests and they applied realist approach to attain it. The "concept of interests defined as power imposes intellectual discipline upon the observer, infuses rational order into the subject matter of politics, and thus makes the theoretical understanding of politics possible. On the side of the actor, it provides a rational discipline in action and creates that astounding continuity in foreign policy" (Alfred 1978: 4-15). This approach supports the core of cooperation and provide opportunity for further advancement.

Energy security is the core of Sino-Russian cooperation. It shapes their strategies and polices because it accelerates economic growth and economic sustainability and spreads prosperity in the society. The economic crisis of 2008 had adversely affected Russian economy. It increased Russia's reliance on oil and gas exports as a major source of revenue. Then in 2009, this crisis forced Russia to pay more attention to energy cooperation and thus it evolved a strategy for the period up to 2030, which widened the horizons of energy partnership. It has formulated "Strategy of Russia for the period up to 2020: implementation, objectives and goals" (Ministry of Energy of the Russian Federation 2010). It stresses Russia's energy strategy up to 2020 which includes the following elements.

- "Transition to the path of innovative and energy-efficient development;
- Change in the structure and scale of energy production;

- Development of competitive market environment;
- Integration into the world energy system.” (Ministry of Energy of the Russian Federation 2010: 13).

The main priority is growth of energy infrastructure. With the Sino-Russian Energy Cooperation, Russia is striving to achieve the following goals- accomplishment of national interest such as economic sustainability, development of infrastructure, exploration of energy, enhancement of service sectors and, emerging as global player.

In 2008, China set up a separate institution for energy, National Energy Agency (NEA) which aimed to shape government policies, laws and regulations promoting energy sector. Chinese government had merged the State Electricity Regulatory Commission (SERC) with NEA to improve efficiency of the regulatory body. It has taken several decisive steps, promoting energy efficiency. The 12th Five Year Plan has paid attention to future energy supply in China and for the first time highlighted energy challenges at international and domestic level. They are as follows:

“The main international concerns it addresses in the plan are:

- 1) Increasing international competition for energy resources
- 2) Major shifts in energy supply globally (the energy plans specifically points out the rise of shale gas and shale oil, as well as the Fukushima Daiichi nuclear reactor accident);
- 3) The maintained or increasing volatility of energy markets; and
- 4) The “complex game” of climate change.

The domestic concerns it aims to address:

- 1) A difficult energy security situation (57% reliance on foreign oil), whereby national production will be difficult to increase (for instance, the plan notes that the new natural gas production that is currently planned will only meet 30% of forecasted new demand);
- 2) Increasing pressure on the ecological environment, including air, land, and water resources;
- 3) A continued state of economic development;

- 4) A lagging energy infrastructure;
- 5) Lack of energy innovation (the energy industry is “big but not strong”); and
- 6) Institutional constraints becoming increasingly apparent, highlighting the need for deepened reform in the energy industry. (Energy Development Plan of the 12th Five Year Plan: The People Republic of China: 2030).

The NEA encourages international energy cooperation. It has strengthened energy security through arrangement of bilateral and multilateral dialogues with International Energy Agency. The NEA has set the following ten goals to achieve above mentioned energy concerns of China.

1. “A work plan for prevention of air pollution in the energy industry;
2. A plan to resolve the problems of substandard waste water, emitted air and emitted light;
3. Research and development of wind and photovoltaic power generation;
4. A work plan for international energy cooperation;
5. An electricity network development plan;
6. Further development of major energy projects and technologies;
7. Promotion of an energy base and corridor development;
8. Strengthening of the energy management, promotion of energy structure improvement, and raising of the energy efficiency;
9. Deepening the energy reforms; and
10. Coordination of the long-term energy development, scientific development and safety.” (China’s National Energy Administration: A short overview: Growth Analysis, Swedish Agency 2014:14)

These goals guide China’s energy policy as well as energy cooperation with Russia. They understand widespread capability of Russian energy source. The analysis says that Russia can play a significant role in the energy security of China. Energy partnership with Russia can safeguard energy assets and sustain market demand. Its energy industry has the capability to satisfy growing energy demand in China. Sino-Russian energy cooperation is

more reliable and suitable for Chinese economy and industries because Russian energy transmission routes save time. China, with other international energy partners like middle east and African countries, has friendly relations but access to these countries is difficult. China accesses energy resources through sea routes which crosses Malacca strait as well as many other transiting countries. It's a long route and fraught with massive risks and pressure like terrorist explosion of energy and other threats. Therefore, China and Russia are stressing to strengthen their energy cooperation. In this context, in 2017, Chinese Vice Premier Zhang Gaoli and CEO of Russian energy company Gazprom Alexei Miller discussed about the development of gas and oil pipeline and emphasised that, "The two sides should implement the China-Russia east-route gas pipeline project and strengthen cooperation in upstream oil-gas projects, oil-gas standards as well as gas-fired electricity generation," (China Daily 2017). Therefore, significance of this cooperation supports interest of both which affects state power politics. They emphasised on bilateral energy cooperation and also said that it is a 'win-win' cooperation for the two countries. (*Xinhua* 25 September 2017)

2.3 Energy Policy and Strategy of China

In the international energy market, China has emerged as the largest energy consumer. Given its increasing dependence on other countries, it has been evolving various strategies for the expansion of energy supplies. Chinese President Xi Jinping in his speech indicated that strategic alliance will provide greater prospects for energy acquisition. "The world is on the brink of radical changes. We see how the EU is gradually crumbling and the US economy is collapsing. This will end in a new world order. So, in 10 years we will have a new world order unlike anything before in which the key will be the union of Russia and China", (Xi Jinping 2018). Since technological advancement plays a key role in the growth of energy security, China factors it into its energy policy. China has been facing several challenges such as huge demand for the energy, increasing constraints in the import, and increasing ecological degradation. China is trying to resolve these challenges with strategic plan and policy implementation. Chinese government is formulating national policy focusing on modern energy-efficient industries, giving preference to saving resources and preserving ecological order. Its effort is to modernise society while promoting conservation

of resources and maintaining ecological balance that can help China in modernising its industrial growth. In 2014, China renewed its energy policy content to accomplish strategic energy objectives. The Ministry of Industry and Information Technology (MIIT) initiated steps to broadening conservation of industrial energy by implementing policies, rules and regulations for the improvement of industrial sector. It states that energy administration must supervise the implementation of these rules for energy efficiency and increasing the number of eco-friendly high-tech industries. It has recommended four ways to develop the supervision of environmental conservation. First, control the execution of energy conserving responsibility system and supervise companies according to energy conservation plans and retrofits, setting target of energy conserving and directing management system. Second, the state supervision of energy dimension and arrangement is central. It includes implementation of energy conservation at an essential level of state “General Principle of Equipping and Managing of the Measuring Instrument of Energy in Organization of Energy Using (Code for Design of Energy Saving for Water Resources and Hydro Projects Dec 2010 GB/T 50649)”. It has aimed to collect energy consumption data and study its impact on environment. Third, broadening the supervision of energy saving mechanisms in vital energy-consuming enterprises. Energy enterprises which consume energy about 10,000 tonnes of coal (tce) of energy per annum to be scrutinised. Fourth; supervising new industrial project’s efficiency depending on industry type and its capacity like steel, iron, electrolytic aluminium and cement sector. Beyond energy preservation, China promotes its supply system as well as infrastructure development. Its strategic action includes “increasing energy efficiency, improving structural intensity, and increasing the use of energy management systems, expanding natural gas and renewable energy-based distributed generation, and to improving the policy environment needed to properly support these types of power generation.” (Energy Development Plan of the 12th Five Year Plan: Industrial Efficiency Policy Database: 2014). Therefore, China’s strategic moves mark a major milestone for its domestic and international energy developments. These strategic steps prepare the ground for Sino-Russian energy cooperation.

Strategic Objectives

China constantly follows the path which leads to economic growth, energy security and ecological conservation. It stresses on innovation and tries to accomplish growth, reform, scientific advancement, skill development, new ideas, modernisation and, promotion of quality. China's energy efficiency not only contributes to its domestic economy but also brings opportunities for global economy, it provides stability and expansion to international energy market. China's energy strategy is concerned with the development of energy system, sustainable economic growth, balance energy consumption, protection of ecology, development of a safe and reliable energy system with technological advancement. China's strategic priority is to strengthen energy cooperation with Russia because of its location and geographical proximity to China. The energy strategy of China toward Russia has the following key factors:

Energy Security

China needs energy supplies from Russia to maintain its economic growth. The core idea of energy strategy is to maintain energy efficiency and simultaneously minimise environmental damages. Dynamically, it has changed the acquisition pattern of the energy resources, the nature of the industrial infrastructure, and advancement of energy-safeguarding technologies and the appropriate energy conservation systems, besides modern energy management. Thus, China established a mechanism to preserve environment and expand the existing energy-protection systems. Presently, the secondary industries are still dominating in China which are a high energy-consuming. China considers inefficient usage of energy which directly leads to wastage of energy, contributing to environmental deprivation and thus weakening the energy security. In 2016, National Development and Reform Commission (NDRC) issued the 'Measures for Energy Conservation Supervision' and updated 'Measures for Energy Efficiency Examination of Fixed-Asset Investment Projects' which enhances supervision of energy productivity. "NDRC and the Standardization Administration of the People's Republic of China (SAC) jointly developed the Plan for Building an Energy Efficiency Standard System to further improve the system and tighten the constraint by energy efficiency standards. In May 2016, NDRC and Administration of Quality Supervision Inspection and Quarantine (AQSIQ)

jointly released the revised Administrative Measures for Energy Efficiency Labelling, expanding the application scope of energy efficiency labels. By the end of 2016, there were totally 35 product energy efficiency labels unveiled officially.” (NDRC 2016: 8). Chinese efforts have resulted in an energy security paradigm. In 2016, it succeeded in reducing energy consumption which stood at “4.36 billion (tce). The annual growth of energy consumption was 1.4%, 2.2 and 5.3 pps lower than the average annual growth during the 12th and 11th FYP periods respectively. The energy consumption per unit of GDP fell by 5% year on year, exceeding the target and task set for 2016 and equivalent to the energy saving of about 230 million tce and the carbon dioxide emission reduction of about 500 million tons” (NDRC 2016:90).

Energy Sustainability

China’s strategic moves determine the dynamics of Chinese energy architecture. Chinese government’s policies and rules are aimed at accomplishing a self-sustaining energy production and consumption. Thus, it made key changes in its laws in accordance with the existing conditions, framed outlines and launched schemes to control carbon emissions, and to enhance green carbon.

In this direction, China’s State Council recently published a work plan, which aimed to diminish greenhouse gas emissions. In the 13th Five-Year plan China indicated certain objectives like green carbon growth, low-carbon emission. The work plan stressed on the reduction of ecological damages. It states that provincial governments must set a target that motivate to minimize greenhouse gas emissions. “As of June 2017, 18 provinces (autonomous regions and municipalities) released such work plans or plans for the control of GHG emissions during the 13th FYP period.” (NDRC:42). In the same way, China’s Ministry of Industry and Information Technology (MIIT) came up with “the Green Development Plan for Industry (2016-2020)” (NDRC:42). Its main purpose is to protect the ecology and enhance green development of the industrial sector. China’s other government departments are also working in the same direction. “NDRC and National Energy Agency (NEA) together unveiled the Energy Production and Consumption Revolution Strategy (2016-2030) and the 13th Five-Year Plan for Energy Development, providing overall planning for energy development for the next five years. NDRC released

the 13th Five-Year Plan for Renewable Energy Development. Ministry of Housing and Urban-Rural Development (MOHURD) unveiled the 13th Five-Year Plan for building energy efficiency and green buildings to push forward supply-side structural reform in urban and rural housing and development.” (NDRC 42). These government departments are keen to broadening energy cooperation to satisfy increasing demands through Russian Energy Cooperation which also assures Chinese energy companies about their demand.

Technological Advancement

Chinese government encourages the ministries and departments to factor technological advancement into every sector because it promotes energy conservation, develop a dispersed economy and reduces carbon emission. Chinese government has been seeking technological solutions for energy conservation, promotion of clean energy, reducing high energy-consuming industries. China successfully launched the global carbon dioxide monitoring satellite for control of carbon dioxide emission and enhancement of scientific experiment. China’s State Oceanic Administration (SOA) is very actively working in this direction. Recently, it “conducted the research projects such as the Study and Application Demonstration of Key Technologies for Dynamic Monitoring of Land-based Carbon Storage in the Sea Based on Remote Sensing and Field Comparison to strengthen the dynamic monitoring of terrestrial carbon into the sea”, (NDRC 2017:26). Chinese technological advancements do contribute to high-tech solution for natural energy extraction. NEA released the 13th Five-Year Plan for Energy Technology Innovation as well as the 13th five-year plans for solar power, wind power, oil, natural gas, and coal industries.

Chinese energy strategy also encourages collaborative approach based on respect for mutual interests and the principle of ‘win-win’ cooperation. It focuses on mechanisms “featuring the joint participation of governments, enterprises, social organizations and individuals, with clearly defined responsibility, openness and transparency, powerful monitoring and multi-channel investments” (Documents of the State Council no 31 2008: 11-12). This approach has attracted foreign investments as well as deepened bilateral relations between China and many countries. China’s partnership with Russia is an outcome of China’s collaborative approach.

Holistic Approach

China takes a holistic approach towards energy growth. China claims to have sufficient amount of fossils. Prior to 1991, China's energy capacity was in decent condition. However, the situation began to change thereafter.

The official data states "by 2006, the reserves of coal stood at 1,034.5 billion tons, and the remaining verified reserves exploitable accounted for 13 percent of the world total, ranking China third in the world. The verified reserves of oil and natural gas are relatively small, while oil shale, coal-bed gas and other unconventional fossil energy resources have huge potential for exploitation. China also boasts abundant renewable energy resources. In 2006, the reserves of hydropower resources were equal to 6,190 billion kwh, and the annual power output was 1,760 billion kwh, equivalent to 12 percent of global hydropower resources, ranking the country first in the world." (China's Energy Conditions and Policies, IOSC 2007: 4). China's rapid economic growth has led to the depletion of energy resources forcing it to look for alternatives.

From the 1990s, China has been concentrating on the growth and diversification of energy sector. China introduced a number energy reforms. For instance, "in 1998, strategic reorganization was accomplished among petroleum enterprises, featuring the establishment of new vertically integrated management system of oil industry". And "in 2002, China's power industry realized the separation of government functions from those of enterprises as well as the separation of power plants from grid operation in line with the power system reform plan." Next reform came in 2005, after the market-oriented reform of the coal industry, China's coal industry saw deepened reform and further development pursuant to the opinions on promoting the Healthy Development of the Coal Industry as issued by the State Council." (IOSC:34). China's 11th Five Year Plan (2006-2010) has circulated the "Medium- and Long-term Special Plan for Energy Conservation" (IOSC 2007:14). The main motive is to control the energy consumption level. It has been implemented in various provinces, municipalities, autonomous regions and even in some industries. Chinese government has also paid attention on energy saving mechanisms by establishing "energy-saving industrial system" (IOSC 2007:15). It has also been established to supervise the growth of - "energy-saving technologies and encourage R&D

of such technologies and products” (IOSC 2007:15). At the same time, China is also aiming to develop a mechanism to find and encourage production of such products which consume less energy. Such initiatives have been measured and framed, fiscal and tax policies are introduced to preserve energy. Chinese strategic reform has promoted energy saving mechanism which has been financed by different government agencies.

China’s energy basket consists “of coal, oil, natural gas and non-fossil energy China’s sources in the primary energy consumption at 62.0%, 18.3%, 6.4% and 13.3% respectively, making differences of -1.7, 0, 0.5, and 1.2 pps compared with those in 2015.” (NDRC 2017:13). “In 2016, the per capita energy and water consumption of public institutions declined by 2.38% and 2.02% year on year respectively, and the energy consumption per unit of building area of public institutions fell by 1.64% year on year” (NDRC 2017:37). Chinese government is trying to control volume of energy consumption as it did 2017. NDRC carried out the on-site evaluation of "double control". The provincial governments as well as on twelve ministries, “including NDRC, MIIT, Ministry of Science and Technology (MOST), and Ministry of Finance (MOF) which jointly issued the 13th Five-Year Action Plan for Energy Conservation were expected to follow these norms. The plan has set forth ten actions such as the promotion of energy-efficient products to advance energy conservation in various aspects and fields (NDRC 2017:7). These initiatives heralded an innovative energy approach.

Further in 2017, the 176 meeting of State Executive Council discussed and acknowledged the idea of development of a pilot zone for enhancement of green economy reform, particularly following five autonomous provinces namely, “Zhejiang, Jiangxi, Guangdong, Guizhou and Xinjiang” (NDRC 50). A report has also been published by China Securities Regulatory Commission (CSRC) titled, “the Guiding Opinions of China Securities Regulatory Commission” (NDRC 50). These steps promote green bonds particularly exchange bonds which support green industry. Other government departments such as CSRC, China Banking Regulatory Commission (CBRC), Standardization Administration of China (SAC), People's Bank of China (PBC) collectively set a plan for establishing a system to finance the green industry (2016-2020) which can encourage the advancement of green economy at standard level. Chinese strategic reform has also covered international

aspect which mainly denotes acceleration of energy cooperation, improvement in energy transmission system with Russia, Central Asia and West Asia.

2.4 Russian Energy Policy and Strategy

Russian energy strategy and policy are factored in a big way into the economic development of the country. The Russian government knows that its energy and economic strategies are deeply interconnected with each other. As Russian Prime Minister Dmitry Medvedev stated, “The total annual investment of fuel and energy companies is estimated at 3.5 trillion roubles, and, of course, we are interested in having this money to work for the benefit of our economy. Due to import substitution, the share of imported products in fuel and energy company procurements will not exceed 10 to 15 percent once the strategy is implemented, that is, 20 years from now” (Russia’s Energy Strategy to 2035: 2016). In the long term, Russia mainly concentrates on energy security, energy efficiency, environment friendly growth and advancement of infrastructure. Russia also focuses on attainment of a self-sustaining system which can provide stability for growth. Russia also wants to ensure energy security by maintaining balance between consumption and production. With time, the energy sectors have been witnessing the incorporation of high-tech technologies, thus unfolding a spectacular industrial advancement. Many new trends have emerged such as renewable energy sources based on new energy, generating distribution and smart networks. Therefore, Russian energy strategy stresses on balance of export policy as well as diversification of energy export to strengthen cooperation.

Russian energy policy advocates the protection of national interests and security, civilian’s rights, business units, management of state property, and attainment of innovation in energy security. Russia’s long-term energy policy focuses on the following factors:

- “Consistency of the state measures in implementing key strategic guidelines for development of the energy sector;
- Interest in setting up strong and stable developing energy companies representing Russia on foreign markets with dignity and contributing to the successful functioning of competitive domestic markets;
- Relevance and predictability of state regulations aimed at private initiative stimulation in implementing state energy policy, Including investments.”(Ministry of Energy of the

Russian Federation 2009: 24) These principles determine Russia's domestic energy policies, encouraging stability for domestic energy enterprises and shaping the pattern of external energy trade. These principles also provide a clear glance of international energy markets, help in predicting forthcoming challenges. Moreover, it encapsulates Russia's motives and future prospects of energy security.

Russian government also framed its policy on the basis of strategic context. On the basis of emerging pattern of modernisation, Russia fosters its strategic relations with other countries. Its bilateral relations and strategic understanding are inspired by the following set of guidelines:

- “Energy security;
- Energy efficiency of the economy;
- Budget efficiency of the energy sector;
- Environmental safety of the energy sector” (Ministry of Energy of the Russian Federation, 2010:25)

These factors provide a holistic approach to Russian energy sector. Russian government is quite clear about energy's role in its economy, polity and ecology. Russia is acknowledging the fact that it is one of determining factors for attaining status of global energy player. As Russian Prime Minister during a government meeting, revealed the distribution of energy , “the energy industry amounted to over 26% of our gross domestic product and slightly less than 50% of budget revenue” and also Russian government document states that, “the gross domestic product of the country grew by 65% compared to its 2000 level with a deviation of 11% from the forecast of the Energy Strategy of Russia for the period up to 2020, actual growth in production of energy resources amounted to 26% compared to its 2000 level with a deviation of 2.6% from its forecast in the Energy Strategy of Russia for the period up to 2020.”(Russian Government Agenda: Implementation of the Energy Strategy to 2030:13). Therefore, Russia utilises this geographical and natural advantage for accelerating its economic sustainability. Politically, Russian government knows the worth of its energy. Thus, Russian Government considers its energy as a tool to forge robust ties with as many countries as possible.

At the same time, energy exploration has increasingly damaged the ecological system of Russia. Without doubt the energy exploration brings development and prosperity but it also ends up adding challenges to the environment. “The energy sector is one of the major sources of environmental pollution in Russia with over 50% of pollutants emissions into the air, over 20% of dirty polluted discharges into the surface waters, and over 70% of total greenhouse gases emission.” (Energy Strategy of Russia for the Period up to 2030, 2010: 34). Thus, Russia has incorporated mechanisms in its state energy policy to ensure energy security. These elements of policy strengthening management include subsoil fund, domestic energy market, innovation and technology. It promotes balance between consumption and production, domestic and foreign policies. The following key aspects are integral to its energy policy.

- “Creating a favourable economic environment for the operation of the fuel and energy complex (including coordinated tariff, tax, customs, antimonopoly regulations and institutional reforms in the fuel and energy complex);
- Introducing a system of advanced technical regulations, national standards and norms improving and stimulating the implementation of key priorities and guidelines for energy development, including improving the energy efficiency of the economy;
- Stimulating and supporting business entities strategic initiatives in investment, innovation, energy-saving, environmental and other priority areas;
- Improving the management efficiency of state property in the fuel and energy complex.” (Energy Strategy of Russia for the Period up to 2030, 2010:24)

Russian energy policy is deeply committed to maintaining sustainable economic development. These policy interventions have increased Russia’s energy production and strengthened its potential. Furthermore, Russia’s energy policy has also put on fast-track its infrastructure development. Russian government’s motive is to become a regional leader in Eurasia, which can be accomplished through its policy implementation vis-à-vis price stability, rationalisation of energy flows and, durable energy supply. Russian policies and strategies follow the footprint of qualitative change, technological advancements, sustainability and human innovation. Moreover, it’s strategic approach endorses certain predictable outcomes such as energy security, diversification of energy export,

enhancement of economic sustainability, balance between fuel and energy and innovation of infrastructure development.

Sino-Russian Energy Cooperation: The Context and Projects

Russia has vast stockpile of energy resources in its far eastern region. Its location is in close proximity with Chinese industrial hub in the northeast. China's aid to Russia makes energy extraction possible in these regions. Since early 1990s, China and Russia started promoting energy cooperation. One of the major reasons for this cooperation during those times was the price of Russia's oil has relatively been low in the global market. The cooperation saw acceleration after the economic crisis of 2008. By this time, China's energy demand had increased considerably and Russian economy needed an inflow of foreign investments. In 2009, Russian Energy Company Rosneft and Transneft got a contract of US\$15 billion and US\$10 billion from Chinese Development Bank (CDB) for installation of oil pipeline and also signed an agreement for 20-year oil supply. This can be seen as a milestone for Sino Russian energy cooperation. Both countries have improved their trade volume drastically since then, "Russian crude oil exports to China increased from less than 1,000 barrels per day (b/d) in 1995 to 321,000 b/d in 2006," (Downs, 2010). In 2000, Russian President visited China. During this visit he signed inter-government and inter-department agreement and also Treaty on Good-Neighbourliness, Friendship and Cooperation. It significantly impacted China-Russia cooperation. In 2001, China National Petroleum Corporation and Russian company Yukos jointly constructed an oil pipeline of about 2400 km between the Chinese city Daqing to Angarsk, Russia. It was completed in 2005. The transport capacity of the same is fixed around 30 million ton a year. In 2005 again both the countries signed an agreement for Crude Oil Easy Trade estimated around US\$ 6 billion for the next five years. Chinese and Russian governments have jointly worked on various routes and transportation systems "for arranging the gas deliveries to the consumers, providing the transit will require significant development of the Unified Gas Supply System (Gazprom) and construction of gas transmission systems on the Far North, East Siberia and Far North. Some of the major gas pipelines include Yamal-Torzhok (length of the route 2465 km, including in the new corridor 1074 km), Urengoi-Surgut-Ulan-Bator-Beijing (6020 km, including on the Russian – 4300 km) and KovyktinIrkutsk-Ulan-Bator-Beijing-the port of

Zhijiao (3400 km, on the Russian territory – 300 km).” (Kharionovsky 2003:1). These projects and their routes of the transportation system play a key role in facilitating the Sino-Russian energy cooperation.

The Natural Gas Project of Kovyktin

Siberian region has a huge deposit of hydrocarbons which has made this region into an epicentre for Chinese companies. Both the countries have been actively promoting various gas and oil projects like the Kovyktin Irkutsk. Its length is about 3400 km. Chinese investments makes it easy in setting up of this project. The project’s capacity matches with the demand of Chinese energy industries. Additionally, China Petroleum and Natural Gas Corporation (CPNGC) and Russian Petroleum Company are continuously monitoring the exploration volume, quality and its impact on environment. South Korean Companies are also showing an interest in this project. Therefore, this project is progressing with the interest of all participants of this project, providing assurance of energy security.

Urengoy Gas Project

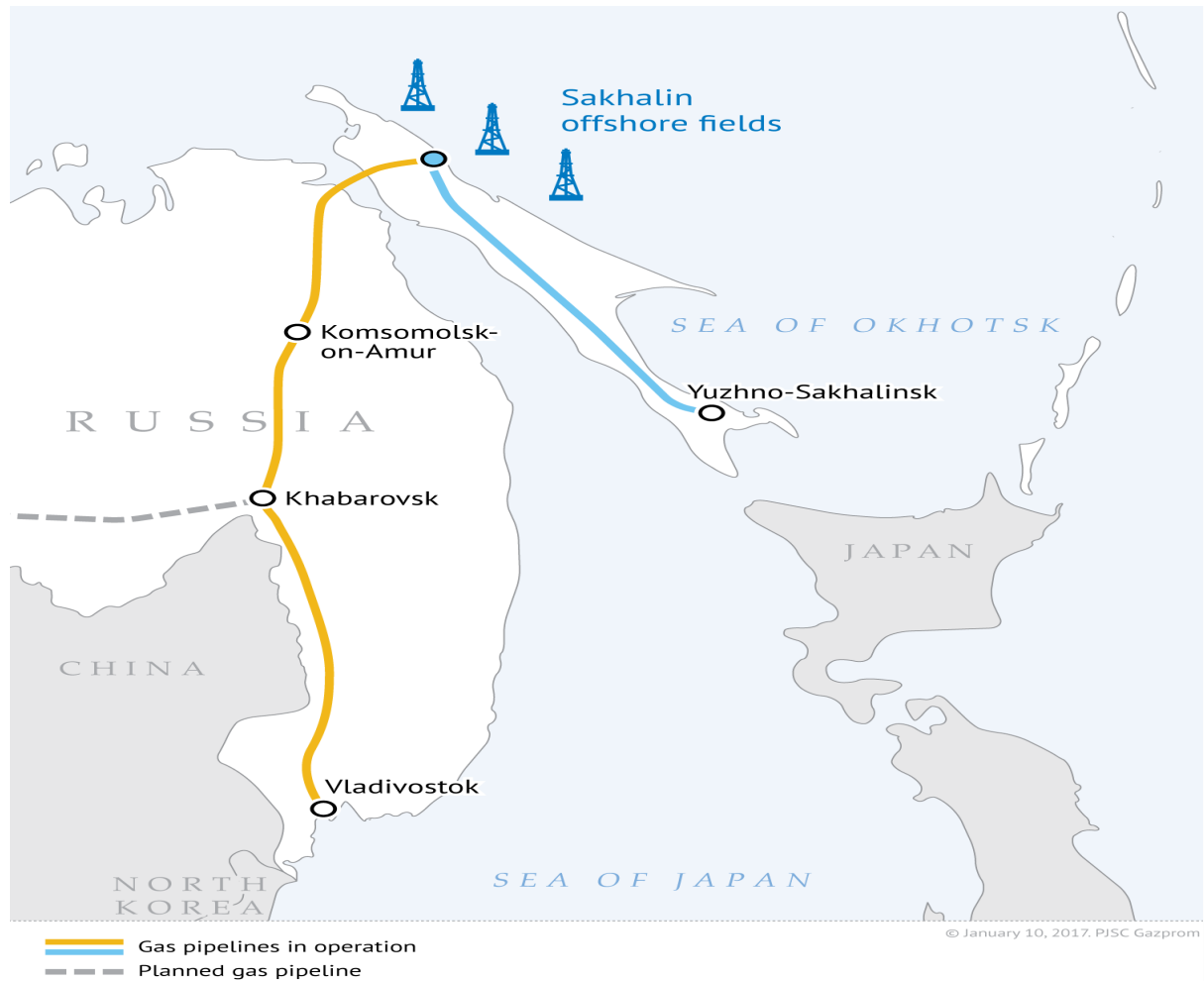
West-Siberian Pipeline named Urengoy–Pomary–Uzhgorod pipeline or Trans-Siberian Pipeline is picking up steam slowly. It is a natural gas project. In 1978, this project proposed to export gas from Yamburg region of Russia which is considered as the third largest natural gas field. It is located in the north of Arctic. This pipeline was constructed in 1984. It starts from Urengoy gas field (Siberia) to Uzhgorod (Ukraine). Its length is about 4,500 km. and transition capacity about 32 billion cubic metre of gas in a year. In 2011, a joint-stock company, UkrTransGaz initiated upgrading this pipeline with latest high-tech features. Chinese and Russian industrial enterprises have been working on this project. Chinese Petroleum and Natural Gas Corporation and Russian gas industry company jointly conducted a study on this project and exchanged expert’s opinions to expedite the process and maximization of the volume of energy transition.

The Chayanda Gas Field

It is a hydrocarbon gas field and located in the Lensky District of Yakutia region. Gazprom is working in this gas field. It was discovered in 1989. Further, in 2007 “The Federal Mineral Resources Agency (Rosnedra) has decided to sell the oil leg of the Chayanda

deposit with reserves of 50 million tons at the beginning of 2008. Sources say Gazprom has agreed to the sale so that oil production at the deposit can be begun before gas production starts. The deposit holds reserves of 1.2 trillion cu. m. of natural gas. Gazprom has previously opposed the sale of the oil deposit” (Kommersant 2014). But, its geological exploration and investment was done by Gazprom in 2015. About US\$ 13.66 billion was provisioned to more than 300 gas fields and about 140 oil wells. The capacity of this gas field is estimated to be about 25 billion cubic metres of natural gas and 1.5 million tonnes oil per year. This gas field has started to produce oil in 2014 and it would be able to produce natural gas by 2019. This gas field is also connected with Yakutia-Khabarovsk-Vladivostok gas pipeline. Chinese Deputy Premier Minister Zhang Gaoli and Russian President Vladimir Putin launched this pipeline in 2014 and its construction is in progress since then. Its main aim is to connect Eastern Siberia to Primorsky Krai and eastern countries. About 1,300 kilometres of pipeline has been completed by the end of 2017 and will be fully operational by 2019. It’s a 56-inch pipeline and its exporting capacity is assessed up to 61 billion cubic metres natural gas per year. This pipeline has been planned to link with the Sakhalin–Khabarovsk–Vladivostok pipeline. It is a Russian natural gas pipeline which transports gas from Sakhalin island to the eastern countries - People's Republic of China, Japan and South Korea. Since September 2011, Sakhalin–Khabarovsk–Vladivostok pipeline has been operational and its length is measured about 1,822-kilometre-long. It transports gas mainly in three phases. Firstly, it exports from Sakhalin island to Komsomolsk-na-Amure city; secondly, it transits from Khabarovsk to Vladivostok and; thirdly, from Komsomolsk to Khabarovsk. Its’ completion, operationalisation and transportation are highlighted in the following map.

Map 2.1 The Sakhalin – Khabarovsk – Vladivostok gas transmission system (GTS)



Source: Gazprom <http://www.gazprom.com/>

Altai Project

The key mission of Altai Project is “to protect natural landscapes and wildlife and support indigenous peoples and traditional lifeways in and around Russia and the 4-nation Greater Altai region that also includes Mongolia, Kazakhstan, and China.” (Altai project January 2018).

It is a natural gas pipeline project which includes mainly Russia, China, Mongolia and Kazakhstan. This project is planned to export energy from western Siberia to China’s north-western region. In 2006, during China’s visit, Russian President Vladimir Putin,

CNPC and Gazprom had signed a memorandum on exportation of natural gas to China. They had also signed protocol in the same year.

Strategy

“CNPC and Gazprom signed a Memorandum of Understanding on promoting cooperation in underground gas storage and gas power generation projects in China, in an effort to promote relevant collaboration and seek a wide range of joint ventures and cooperation opportunities. The two sides also signed an agreement to cooperate on standards and conformity assessment results, and an MOU on feasibility study cooperation in the Natural gas vehicle (NGV) fuels sector, in a bid to deepen cooperation in standardization and NGV fuels.” (CNPC 2018). Gazprom has emerged as global energy company, developing a promising market for energy exportation. Russian energy has diversified its market in Asia-Pacific countries, especially China has emerged as the largest energy partner of Russia. Gazprom has expanded its energy export system by entering the Chinese energy market. Gazprom has successfully supplied gas and other energy resources to China while supplying gas to other countries. Thanks to huge natural energy deposit, Gazprom was able to satisfy multiple demands on the energy front.

Chinese Energy Market

China’s energy consumption and production witnessed a major imbalance in 2007. Its domestic energy production was about 69 billion cubic metres and consumption level marked the same. But, it has grown year by year and according to Chinese experts it will grow to 280 billion cubic metres by 2020.

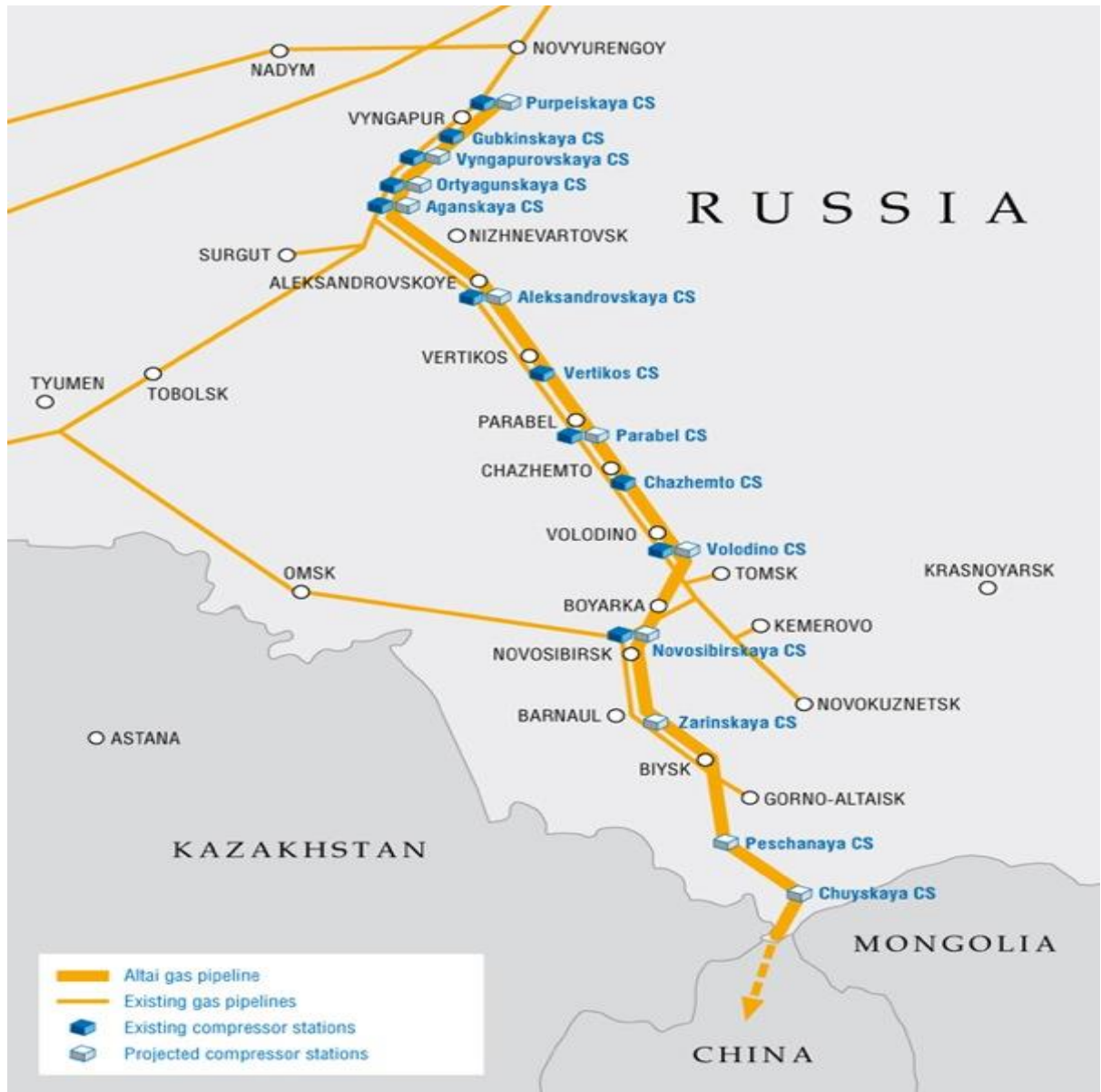
The Chinese energy market shapes the future perspective of energy cooperation. It indicates that both “sides should focus on energy policy synergy, cooperation planning and research, technical exchanges, mutual acceptance of standards, and personnel training in the near future. They should also enhance cooperation on project investment, joint ventures and capacity cooperation on energy equipment manufacturing” (Xu 2018)

Thus, Chinese energy demand has played a great role in the development of Gazprom. Gazprom found a reliable and friendly partner in China for gas export. Gazprom exports

gas to China at similar tariff rate as that of crude basket. Both China and Russia benefit from energy cooperation.

Altai Gas Pipeline length is about 2,600 km and capable of transmitting 30 bcm per year. It is connected with the Kovykta. China and Russia have opportunity of land accesses through the Altai gas pipeline. It connects Russia to China's Xinjiang region crossing many regions as the map below shows.

Map 2.2 Altai Gas Pipeline



Source: Gazprom. <http://www.gazprom.com/>

2.5 Energy Projects: Challenges and Reliability

China imports energy from Russia's west which has started depleting at a large scale. Chinese experts envisage that about 76 percent of natural gas production will be extracted at new energy field by 2020, as above analysis projects and pipelines are under development process. The gas pipelines and other infrastructures are inadequately developed. These complexities demand more investments in high-tech machines or motivate to find solutions to the same which are of high cost. Hence, it needs drastic improvement in the efficiency of transporting pipelines. In this way, China is working on the "941.8-kilometer-long line starts from Mohe in Northeast China's Heilongjiang province, which borders Russia, crosses North China's Inner Mongolia autonomous region, and ends in the city of Daqing in Heilongjiang. Its construction began in August 2016 and ended in November 2017. The project set the record for constructing 800 kilometres of pipeline in 180 days in a high-latitude extremely cold area and is aimed at deepening energy cooperation between China and Russia and serving the Belt and Road Initiative. With an annual capacity of 15 million metric tons, the project is expected to double China's annual imports of Russian crude oil to 30 million tons, filling the supply gap caused by the decline in crude oil production in north-eastern China." (Zou and Zheng 2018)

The recent installation of pipeline helps Russia to tackle the emerging transportation issues. In Russia, transmission lines which were constructed in the 1960s and 70s have become obsolete for today's use. Contemporary industrial development is putting enormous pressure on these pipelines. Gas transmission system needs compatibility of high pressure which can be more sustainable for exportation of gas.

Russian experts are concerned about the reliability of the gas pipelines. The pipelines are designed according to the existing demand which has drastically changed. Any new pipeline model mainly follows two levels of examination:

- The first level "includes preliminary estimates of regional and route features obtained by the existing building regulations
- The second level focuses on the probabilistic analysis of safety based on possible realizations of undersigned loads and effects, occurrence and missing of defects in the process of intelligent pigging, tests and operation. (Kharionovsky 2003:3)

The pipeline which is based on above mentioned evaluation method, provides reliable outcome. However, the pipeline projects are critical for ecological damages. Pipeline routes disrupt natural habitat and species. They harm environment, specifically when the pipelines get exploded as happened in 2007 with Urengoy-Uzhgorod pipeline. It released immense amount of carbon dioxide, carbon monoxide and other gases which pollute ecology. Thus, while initiating gas projects and pipeline, the governments should take special care of environment. Gas pipeline projects must apply advance and reliable systems during their construction. Projects must maintain transparency in terms of emission, level of damage to the environment.

Energy projects are planned to accelerate manufacturing sector but they should also consider development in the region and the health of the population. Energy projects create employment that supports regional development. Like in Altai gas project, collaboration included financial development as well as social projects. The Agreement between Gazprom and Altai republic administration involves supplying gas in rural areas, reconstruction of the roads and bridges. Gazprom is planning to provide proper skill training for further maintenance of gas pipeline. Furthermore, it also offers financial support for other social projects.

2.6 Summary

Sino-Russian energy cooperation has started soon after the disintegration of Russia. China and Russia began working on several projects like Urengoy Gas Project, Chayanda gas field, Yakutia-Khabarovsk-Vladivostok pipeline to access Russia's far eastern region. Constant dialogue between the two countries has broadened the strategic energy cooperation. In 2010, Chinese Premier Wen Jiabao and Russian President Vladimir Putin signed various key agreements related to gas, oil, nuclear and coal.

This cooperation also fits with Heckscher-Ohlin Theorem which describes Russia's energy exports to China. Energy cooperation between the two countries sustain the equilibrium; Russia's exports to China and China's investments in Russia. The study is also located in the Theory of Realism because it supports the basic tenets of cooperation. This cooperation has realist approach towards energy cooperation, benefiting both the national interests and strengthening their comprehensive national power in the international energy market.

Chinese and Russian approaches towards energy cooperation shape their strategy and also policy formulation and implementation. They share rational approach towards energy cooperation. Geographical proximity is central to boosting their cooperation. Their strategies and policies have been facilitating schemes for developing transportation system. Stability of the region ensures security for production and transportation. China's increasing demand for energy has been the driving force behind its investments in the Russian energy industries. Most importantly, the core of this cooperation is to broaden state to state long- term relations.

Russian energy strategy is intertwined with its commitment to economic development. Its main aim is to expand the extraction of abundant natural resources in Russia. It focuses on the development of necessary infrastructure for energy enterprise and it also stimulates within the energy sector. There are also some critical issues such as impact of excessive use of energy on ecology, energy resource depletion, conflict and competition in international market that emerged during the evolution of this cooperation. Therefore, China and Russia need to factor these elements into their energy cooperation.

Chapter- 3

Sino-Russian Energy Cooperation: Opportunities and Challenges

3.1 Introduction

Expanding industrial development has made energy even more critical. “In recent years, demand for energy has surged. This unrelenting increase has helped fuel global economic growth but placed considerable pressure on suppliers buffeted by geopolitics, violent weather conditions and other potentially disruptive factors. On the demand side, increased energy security and environmental concerns may lead to changes in consuming countries’ energy policies. These uncertainties have been reflected in the market through volatility and high prices” (Birol 2006:1).

Following this trend, though ideology dominated their relations until 1990s, energy partnership became a core element in Sino-Russian relations. China’s high energy consumption and struggle for energy supplies has necessitated mutual cooperation between China-Russia reaching a stable condition with the launching of several projects. For instance, “The Eastern Siberia–Pacific Ocean oil pipeline (ESPO) with a branch line to China launched in 2011, extending from Skovorodino in Russia to Daqing via Mohe, in the northeast China’s Heilongjiang province. With the total length of 63 km in Russia and 960 km in China, the pipeline can transport 20 Mt (about 410 kb/d) of oil from Russia to China per year, with currently 15 Mt (about 308 kb/d) of oil shipped annually. In 2013 Rosneft and Transneft agreed to increase the capacity of the Skovorodino to Mohe spur to 20 Mt by 2015, and 30 Mt by 2018.” (IEA, Russia 2014:160). According to some sinologists, China’s economic sustainability relies on stability of energy security which can be enlarged with energy diplomacy and foreign policy. In this direction, China mainly concentrates on the advancement of infrastructure for energy transmission which can provide easy and durable access to energy resources.

The changing scenario of international energy market increased vulnerability of natural energy. However, it is a well-known fact that Russia’s natural energy storage increased substantially making Russia a leading exporter of energy, enhancing energy exports to a number of Asia Pacific countries. The “total exports of Russian crude oil to foreign

countries increased from 6% in 2008 to 20.4% in 2012. The government projects that Asia Pacific-bound exports will represent up to 33% of total Russian crude exports by 2020.” (IEA, Russia 2014:158).

The energy cooperation between China and Russia has positive influence on both nations. They also have favourable conditions for China and Russia as both countries have land access because they share common border. The energy cooperation facilitated mechanisms for deepening mutual understanding and also improved the strategic engagements between two partners. The energy cooperation mainly based on various agreements and deals brought stability in the energy supplies. The energy cooperation with China indicates Russia’s significant strategic move toward East Asian countries which stimulates cooperation with numerous regional partners since 2002.

The energy cooperation has played a key role in the development of under-developed regions of both the countries. Infrastructure development in China’s hilly regions of east and west as well as Russia’s far eastern region brought considerable transformation. Russia has adopted strategy for economic investment in Siberian region which required the establishment of special centre for oil and gas in east Siberia and also the development of transportation infrastructure. Further major advancement in the energy cooperation marked by the installation of west-east gas pipeline project “to connect the Tarim Basin in Xinjiang Autonomous Region and Turkmenistan with the Yangtze Delta and Pearl Delta regions. The first west-east gas pipeline (WEPP I) opened in December 2004. Construction on the second pipeline (WEPP II) started in February 2008 and was completed in December 2012. Ground breaking for the third pipeline (WEPP III) took place in October 2012 and the pipeline was constructed by August 2014. WEPP IV is still in the planning stage.” (West-East Gas Pipeline Project 2018).

Thus, energy cooperation became a factor in strengthening the dynamics of trade and economic relations between China and Russia. Russia is mainly focusing on the development of Eastern Siberia region as well as Far East region because these regions have strategic value in Sino-Russian energy relations. Its location provides easy connectivity with East Asian countries, particularly with China. It reduces length of oil and gas routes. It is crucial for China given its energy demand increasing by the day. “In 2009,

China surpassed the United States to become the world’s largest energy consumer economy, largely because the impact of the economic crisis was less severe on China than on other parts of the world.” (IEA Seaboard 2011:6). Chinese consumption of primary energies is as follows:

Table 3.1 China’s Primary Energy Consumption, 2008-2016

2008	2009	2010	2011	2012	2013	2014	2015	2016
2229.0	2328.1	2491.1	2690.3	2797.4	2905.3	2970.6	3005.9	3053.0

(Thousand barrels daily)

Source: *BP Statistical Review of World Energy June 2017*.

Development of transportation system between China and Russia benefits both countries domestically as well as globally. The energy cooperation has a significant impact on technological advancement, deepening relations between the two countries. At the same time, Sino-Russian energy cooperation is also facing challenges and risks.

In order to address these challenges China and Russia have been signing numerous agreements, framing policies as per their national interests and establishing mechanisms for safe and secure energy transmission. Their key purpose is to achieve a stable long-term cooperation. Far Eastern part of Russia is at the core of cooperation, substantial deposits of natural gas is a major attraction for China.

The energy cooperation between the two countries has a long history of complexities of mutual agreement, risk of uncertainties and also some critical issues influencing export of energy resources. In the present context, energy cooperation between China and Russia has passed through various up and downs, witnessing serious impact on the energy cooperation in the past. The energy cooperation mainly faces the following obstacles. Firstly, lack of adequate transportation system in the Western Siberia and the far east region of Russia. Secondly, “The energy demand in China continues to grow rapidly. One of the challenges is the transition from a heavily fossil fuel dependent energy system to a more sustainable development path. This has led to a massive focus on alternative sources of energy in China, which will have a great effect on the energy market both in China and globally.” (Enrico

2014). Thirdly, the energy strategies drive both states to frame their policy differently due to their own interests which influence energy reform process and also energy market. Fourthly, there is an emerging issue of security arrangements for transnational pipelines and personnel. Fifthly, the implementation of energy cooperation from paper to reality. Sixthly, the energy cooperation has also the limitation of environmental hazards.

Against this brief backdrop, this chapter is divided into the following sections. Section two focuses on the background of the energy cooperation. Section three assesses the growing opportunities of this cooperation. Section four examines the challenges of the energy cooperation. The last section summarises the key findings of the chapter.

3.2 Background of Energy Cooperation

The energy cooperation has reached the present level with various stages which have significantly broadened cooperation between the two countries. Sino-Russian energy cooperation can be understood in three phases.

Firstly, the energy cooperation between China and Russia began in the 1990s when Russia wanted to widen energy cooperation with China. Due to hostile condition, Russia, desired to encourage multilateral relations at global level. After 1991 (disintegration of Soviet Union) Russian foreign policy proposed to use energy cooperation for economic stability. So, Russia focused on China but at that time Chinese industrial sectors were not suffering from scarcity as well as there was only railway ‘connectivity which considered as a risk. Consequently, China responded negatively to Russian energy cooperation.

Secondly, China- Russia energy cooperation marked second phase from 1991 to 2005. During this phase Chinese energy infrastructure had been improving drastically. China and Russia had enthusiastically started negotiations for energy cooperation. In 2000, they moved further with the visit of Russian President Vladimir Putin to China. During the visit President had inked some fundamental agreements with Chinese President Jiang Zemin. In 2001, Chinese company CNPC and Russian Company Yukos had agreed for the installation of oil pipeline between China and Russia, a 2400 km long pipeline and to be completed by 2005. In 2002, took a major step in the direction of widening energy export to East Asian countries. Japan had come to Russia with the proposal of East Siberia-Pacific

oil pipeline linking Russia to Japan, which slowed the speed of Sino-Russian energy cooperation. Thus, China decided to increase investment in Russian energy infrastructure.

Thirdly, this period of cooperation began from 2006 and continues to this day. In 2006, Russian President again visited China and participated in various talks with the Chinese President Hu Jintao. These bilateral visits had provided more opportunities for Sino-Russian bilateral relations along with expanded energy export to China. “The intensification of energy sector cooperation is particularly important. Both sides confirmed their intention to continue joint work on the construction of pipelines to deliver energy resources from Siberia to China.” (Kremlin.ru 2006). During this visit both the Presidents had signed fourteen agreements. In 2007, they had agreed for supply of natural gas. Gazprom had proposed a plan for the establishment of new gas pipeline between two countries and also a mechanism to fix price. In the same year, during the visit to Russia, Chinese President Hu Jintao had signed an agreement estimated at US\$4 billion which robustly enhanced the partnership as Russian president Vladimir Putin stated that “Today's negotiations once again confirm the strategic nature of Russian-Chinese partnership. Our diplomatic, business and humanitarian ties are getting stronger at a fast pace. The results of the recent Year of Russia in China were very fruitful. We both agree that it demonstrated the great potential of co-operation between the peoples of our two countries. Today we have discussed the ways of developing our co-operation, and this has resulted in signing of several agreements you have just witnessed”.(RT News2007)In 2008, despite change of Russian presidency, when Medvedev became the new President of Russia, energy cooperation had remained same as it was during the last regime. Both countries have strengthened bilateral relations through numerous high-level official meetings and visits. In 2009, both had agreed on an ‘Action Plan for 2009 to 2012’. Its main goal was to execute the “Treaty of Good-neighbourliness, Friendship and Cooperation’ between China and Russia. Both countries had agreed to construct oil pipeline between Skovorodino and Daqing. China’s bank had also loaned to Russian companies ‘Rosneft’ and ‘Transneft’ worth estimated \$25 billion (\$15 billion to ‘Rosneft’ and remained \$10 billion given to ‘Transneft’). In return the two companies agreed to provide 300 million tonnes of oil and gas and fixed annually about 15 million tonnes from 2011 to 2030. Prime Ministers of the two countries had also agreed for transmission of natural gas, hoped to begin by 2014 or

2015. In 2010, Russian President visited China to enhance bilateral relations and energy cooperation between the two countries. He also inaugurated a pipeline for oil supply to China. In 2014, a significant improvement occurred in Sino-Russian energy cooperation with the signing of the of \$400 billion deal for gas export to China. After the Ukraine event and fear of losing European energy market, Putin was keenly looking to the east, particularly China. Putin stated that “This is the biggest contract in the history of the gas sector of the former USSR,” (Anishchuk 2014). In 2016, Putin visited China and inked various energy deals strengthening economic relations. In 2017, China signed a deal with Rosneft, the deal was estimated \$9 billion. In return, Rosneft would supply 60.8 million tonnes of oil for five years and to be operationalised from January 2018. China and Russia have also engaged with each other in various international for as, which have contributed to the deepening of Sino-Russian energy cooperation.

3.3 Sino-Russian Energy Cooperation: Growing Opportunities

China’s energy cooperation with Russia is built on the growing opportunities within its domestic context as well as the global context. Chinese President Xi Jinping stated that China is committed “risks into opportunities and replace confrontation with cooperation and monopolies with win-win deals. China will always follow a path of peaceful development and an opening up policy featuring mutual benefit and win-win deals. The purpose of China’s foreign policy is safeguarding world peace and promoting common development. China is willing to expand common interests with Russia, build a new type of international relations with cooperation and mutual benefit as its core values” (Xi Jinping, Speech at the 95th Anniversary of the Communist Party of China 2018). China concentrates on its energy cooperation with Russia primarily to support its strategy of expansion of energy imports in its national interest and foreign policy. To realise this, “a series of policy advice has been offered such as strengthening the policy coordination, enhancing regional policy innovation, echoing with clean development mechanism, implementing process management, constructing market investment and financing system” (Peidong 2009:439). China has established various mechanisms such as “Energy security of the People’s Republic of China” to guarantee itself and its industries long- term access to sufficient energy and raw materials. China has been endeavouring to sign international

agreements and secure such supplies; The National Energy Commission (NEC) is an agency established in 2010 to coordinate the overall energy policies for the People's Republic of China. Its main aim is to maintain energy security. These organisations are constantly working to improve energy system. Chinese Energy experts claim that China needs energy collaboration with Russia for ensuring the following aspects:

- Energy saving and promoting energy security
- Acceleration of nuclear energy, renewable energy utilisation
- Encouraging use of green energy and clean energy
- Provisioning multiple uses of energy
- Improving technological advancement for better use of energy resource.
- Launching energy reform schemes, policies and regulations.
- Strengthening energy efficiency

The Chinese perspective on its energy cooperation with Russia revolves around energy security. Its current international economic growth fundamentally relies on the supply of energy. China's inadequate domestic energy source forces it to explore other countries' energy resources. In this context, China's Belt and Road Initiative plays a key role in its energy cooperation with Russia.

Energy Cooperation and Belt Road Initiative

While underscoring the importance of the Belt and Road Initiative, the Chinese President Xi Jinping observed that “The Belt and Road can be seen as an opportunity to promote transnational interconnection, improve trade and investment cooperation, advance cooperation in international capacity and equipment manufacturing to rebalance and stabilize the world economy, more specific Belt and Road policies should be worked out and major support should be focused on strategic projects including facilities cooperation, energy resource use and core technology research and development. Financial innovation and cooperation in building the Belt and Road, adding the initiative should include a stable, sustainable and risk-controllable financial security system.” (Huaxia 2016)

‘Belt Road Initiative’ (BRI) and Sino-Russian energy cooperation are complementary to each other. Both have especial importance in the foreign policy of China creating more opportunities for Sino-Russian energy cooperation.

In the context of long term cooperation, both have signed some major agreements, which widen the scope of bilateral transactions. “Russia and China have signed a 30-year, \$400bn (£237bn) deal for Gazprom to deliver Russian gas to China in a deal that underscores Russia's shift towards Asia amid strained relations with the West. The contract to provide 38bn cubic meters of gas each year was signed by the state-owned gas companies Gazprom and CNPC (China National Petroleum Corporation), Vladimir Putin and Xi Jinping, at the end of Putin's two-day visit to Beijing.” (The Guardian 2018). The deal has revitalised the cooperation providing financial back up. Both countries are constructing pipelines, promoting investment in the development of greenfield, “The Chayanda and Kovykta gas fields are in eastern Siberia. The ‘strength of Siberia’ pipeline that will bring gas to China through Vladivostok will run 4,000km (2,500 miles) through swampy, mountainous and seismically active areas. According to Putin, Russia will invest \$55bn developing the project, while China will invest at least \$20bn.” The Guardian 2018). Moreover, Energy cooperation between China and Russia offers more scope of rewards which can achieve through regular negotiations between two states. It promotes vast supply of oil and gas, advancing the pipelines in the eastern part of Russia and north-eastern part of China. Both countries are actively participating in the cooperation, spreading the network of pipeline which has broadened the energy supply between two countries on the basis of mutual benefit.

The energy cooperation between China and Russia witnessed a long struggle with regard the extension of transportation system. Currently, both are working on the installation of pipelines because the existing condition of connectivity is very poor and maritime route consumes extra time as well as money. So, constructing pipeline facilitates energy import efficiency and enables easy supply of energy to China. The construction of energy supply system connects Russia’s Siberian and Far Eastern region to China’s North-east region namely Daqing. In the long term. this connectivity opens up east Asian energy market for Russian energy supplies. The construction of transportation system provides a strong foothold for Russia in East Asia.

The energy cooperation between China and Russia requires advancement of the technological system which can boost energy supply for long time. The energy cooperation

opens up opportunities for energy exploration and improvement of high-tech technology. It also highlights the importance of technological enhancement which has a key role in speeding up energy exploration, extraction and supply. Both countries have a strong bonding in terms of mutual cooperation. China's huge financial aid contributes to the Russian energy enterprises to improve energy extraction process and on the other hand, Russia's huge energy supplies can maintain sustainable growth of Chinese manufacturing industries. The pipeline construction has increased trade between two countries. The technological innovation also plays a role in deepening of cooperation. Both countries are stressing on high-tech energy resources such as "wind energy and geothermal energy, solar energy, biomass energy, nuclear fusion energy and so on." (Li 2011). Both countries constantly strive to advance the transportation system because "Supply of oil is now estimated to peak at the latest around 2010-15, while demand – from newly motorising nations such as China, India, Brazil, Indonesia and Russia – will continue to increase. This cost increase in conventional fuels could increase the demand for alternative power-train technologies such as the hydrogen fuel cell." (Wells 2012:28). Therefore, China is investing capital in science and technology to advance technology, Russia is also very active in the process of development of high-tech mechanism for energy cooperation, which can create new opportunities, reducing misuse of energy and also innovate new ways of energy utilisation and recycling.

Energy Trade

Energy has a major share in the trade between two countries. There are certain factors which accelerate trade between China and Russia such as geographical location and their mutual cooperation in various sectors. In this direction, "Russia signed a major oil export deal with China in 2009, agreeing to supply 15 million tonnes per annum through the East Siberia–Pacific Ocean pipeline. Since then, China's energy cooperation with Russia seemed to always leave a bitter taste until 2014. The catalyst for better relations was the crisis in Ukraine, which estranged Russia from the West." (Wang 2016) Mutual interest of both countries has facilitated in signing various key agreements which significantly shaped the architecture of energy cooperation. The high-level meetings between the two countries suggest their attempts to create positive atmosphere for energy deals. As Russia's President

Vladimir Putin stated after signing a gas supply deal with China at an estimated value of \$400-billion “Through mutual compromise we managed to reach not only acceptable, but rather satisfactory terms on this contract for both sides. Both sides were in the end pleased by the compromise reached on price and other terms,” (Anishchuk 2014).

In 2009, Russian oil companies Rosneft and Transneft had signed an agreement with China and China had lent \$25 billion to Russia. Russia would provide 15 million tonnes oil every year for twenty years. “Since 2011, Russia has been supplying China with around 300,000 barrels per day (bpd) of crude oil Eastern Siberia-Pacific Ocean (ESPO) oil pipeline running from Skovorodino in Russia to Mohe, from where an existing pipeline carries the oil to Daqing. In June 2013, CNPC and Russia’s Rosneft agreed to double the flows of ESPO crude to China by 2018.” (Reuters 2015).

Over the last fifteen years their trade volume increased from US\$15.8 billion in 2003 to \$95.3 billion in 2014. According to experts, by 2020 their trade will grow to US\$200 billion. Further, to accelerate trade, both countries have developed organisational mechanisms like “Russia-China Investment Fund (RCIF), a private equity fund investing in unique opportunities which have appeared as a result of rapid development of economic cooperation and increasing purchasing power of the middle class in Russia, China and CIS countries. The Fund was created by the Russian Direct Investment Fund (RDIF) and China Investment Corporation (CIC). RCIF focuses on cross-border transactions as well as investment opportunities within the economic region across a broad range of sectors to facilitate both countries’ structural reforms and economic efficiency.” (Han and Medvedeva 2016) Therefore, trade between China and Russia has expanded energy cooperation. It is advantageous for both the countries, ensuring economic sustainability, prosperity and energy security Their bilateral relations and mutual cooperation motivate both to deepen energy cooperation. The cooperation makes Russia focus on the progress of Far Eastern Part of China and infrastructure development generates employment which, in turn, attracts people to migrate to this region. Strategically, Russia framed policy which primarily speeded up cooperation. On the other hand, China’s energy galloping consumption necessities to collaborate with Russia and developing energy infrastructure such as high capacity pipeline between China and Russia. “CNPC’s PetroChina has some

1.85 million bpd of refining capacity in northeast China, including the Liaoyang, Harbin, Dalian and Jilin petrochemical facilities. ‘The second oil pipeline will help integrate northeast China’s crude resources, and further improve the safety and reliability of China’s crude oil supplies.’ In April 2016 Sergei Andronov, the Vice President of Russian pipeline operator Transneft, said his company was ready to begin exporting 600,000 bpd of crude via the Skovordino-Daqing pipeline by early 2018.” (Murphy 2016). In 2017, “trade between China and Russia rose 27.7 percent from the previous year to 419.6 billion yuan (\$63.2 billion)” (Qingqing 2017). Thus, both countries are constantly engaging in various talks and agreements which are boosting their energy cooperation and trade. In terms of future, energy cooperation has great potential. It will be a durable source for China and Russia will be a reliable partner.

Investment Attraction

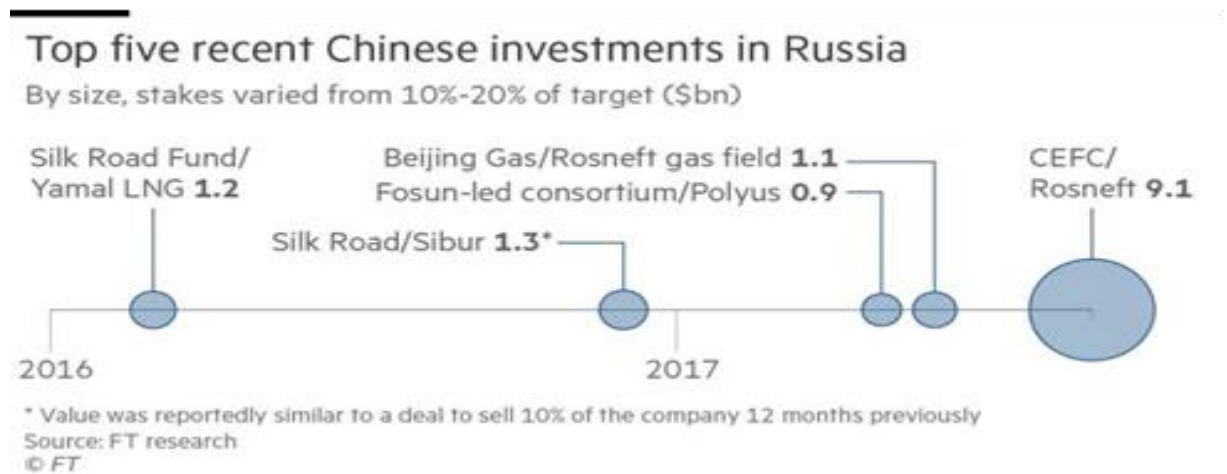
According to Russian business group EY and Russia-China Investment Fund (RCIF), Chinese energy market has high capacity of investment return and eager to invest in Russian energy. In 2011, RCIF aimed to strengthen bilateral relations with China in the areas of trade and investment. In 2012, the Fund had “committed 19 investments worth US \$1 billion in wood processing, transport infrastructure as well as the financial, technological and consumer sectors.” (RCIF 2017). This mechanism has set a platform for deepening investment between China and Russia as Managing Partner of EY Alexander Ivlev stated that “Trade and economic ties between China and Russia continue to strengthen. Effective cooperation is already under way in such sectors as oil & gas, infrastructure, e-commerce, agriculture and construction. As a result, the volume of trade between China and Russia was up 34% year-on-year in January 2017.” (RCIF 2017). Chinese have been investing in Russian energy infrastructure to broaden energy cooperation. The Russian economy has suffered heavily due to economic crisis and decline of energy tariffs. It also has a strong thrust of Foreign Direct Investment (FDI) which can keep the economic system on track. On the Chinese side, China Investment Corporation (CIC), which has been working with Russia-China Investment Fund (RCIF) for the same purpose. The Executive Vice President of CIC, Qing Zhang, highlighted that “CIC has a long history of investing in Russia. In 2012, CIC decided to jointly set up RCIF with

Russian Direct Investment Fund (RDIF), a trustworthy investment institution and reliable partner in Russia. So far, RCIF has generated good investment returns and raised its reputation in China-Russia investment.” (RCIF 2017).

Russia’s annexation of Crimea and intervention in Ukraine have created conditions for Western sanctions. So, Russia was forced to evolve its own strategy of pivot to China and China welcomed it with investment in energy infrastructure of Russia. China Development Bank (CDB) and RDIF projected a joint investment estimated at 68 billion yuan (\$10 billion). Its main aim is to develop necessary energy infrastructure. Additionally, Russian state development bank and Vnesheconombank (VEB) had signed an agreement with CDB for a fifteen-year loan valued at 50 billion roubles (US\$850 million) to establish innovation fund. Lin Boqiang an energy expert at Xiamen University said that “It used to be really hard to do business with Russia. Because they are a resource-rich country, they wouldn't give an inch, But now it's a lot easier. Because of the market conditions, they need it more and it's become a lot easier. It's a big opportunity.”, So, China is enthusiastically investing in Russian energy infrastructure and agreed to invest in various oil, gas pipelines.

The above-mentioned projects highlighted in Figure 3:1 show that China relies on Russia, despite other global players, who want to isolate Russia. Russia is very optimistic as one of the senior executives of oil says that “Russia’s credibility, creditworthiness still isn’t high but it’s true, they are more open and their attitude has changed. China can get the oil or gas by pipeline and the resources are a known quantity. It's a better bet than taking the same amount of money to Africa or Venezuela.” (*Financial Times* 2011). Therefore, opportunities for investment in Russian energy sector continue to be substantial.

Figure 3.1 Chinese Investment in Russia



(Financial Times, 25 september 2017)

Sino-Russian Energy Cooperation and Russian Economic Growth

Sino-Russian energy cooperation is determined by several factors. One of the key factors is the benefit that the Russian economic system accrues. It improves Russia's domestic economic order, advances the inclusive productivity of the Russian energy industry, energy infrastructure and export efficiency and also determine the transmission of energy. Both nations give special attention to the energy deals. Russia's huge geographical expanse has witnessed uneven economic growth of eastern and western regions which adds opportunities as well as challenges for the Russian government. Therefore, Russia emphasises the development of energy manufacturing sector, implementing a strategy which shapes Russian approach towards Eastern Siberia and East Asia.

Russian energy cooperation with China also depends on its abundant energy resources located in eastern Siberia and the Far East region. Due to weak financial condition, inadequacy of funds, lack of energy infrastructure Russia is looking for stable economic partner in China. In addition, Russia strives to resolve several issues relating to Far East and Eastern Siberia. The energy cooperation is aimed at addressing these challenges. It is also a key factor in regional economic development. China's financial aid would provide appropriate arrangement for the construction of eastern part of Russia. China's northeast industrial development is in dire need of appropriate supply system which connects to eastern parts of Russia. It reduces the transportation costs of oil and gas. It encourages the

competitiveness of Russian energy tariff in the international energy market. Both countries treat energy cooperation as an opportunity. Russia's strategic decisions toward eastern parts addresses its economic crisis and China's close proximity with Russia in the northeast region facilitates its regional infrastructure development, and also ensures China's energy security.

Diversification of Russian Energy Supply

Russia has a key place in the international energy market. For instance, its energy cooperation with European Union (EU) is a reflection of this phenomenon. Russia has a significant place in the energy market of EU. Russia exports large quantities of oil and gas to EU. These countries provide a huge market for Russian energy industry. "In 2015, about 25.8 % of the EU-28's (members) imports of solid fuels were from Russia: it became the principal supplier of solid fuels in 2006, overtaking South Africa. Russia's share of EU-28 solid fuel imports rose gradually from 20.2 % in 2005 to a relative peak of 26.2 % in 2009, before falling rapidly in 2010 and then subsequently rebounding to 25.9 % in 2013, after which its share remained almost unchanged. In the following two years Russia was also the principal supplier of EU's crude oil imports. Its share stood at 30.5 % in 2005 and rose gradually to a peak of 32.8 % in 2011, before falling to 27.7 % in 2015." (Eurostat Statistics 2017). The trade between Russia and EU countries highlights the importance of Russian energy in the EU energy markets but the Ukraine incident has affected this cooperation. In May 2014 "the European Commission released its Energy Security Strategy which aims to ensure a stable and abundant supply of energy. It also took short-term measures looking at the impact of a halt to Russian gas imports or a disruption of imports through Ukraine, the strategy addressed long-term security of supply challenges and proposed actions in five areas, including: increasing energy production in the EU and diversifying supplier countries and routes, and speaking with one voice in external energy policy. In 2015, the European Commission released a Communication concerning a framework strategy for a resilient energy union with a forward-looking climate change policy which argued that one important element in ensuring energy security (in particular for gas) was full compliance of agreements related to buying energy from non-member countries. This was followed in February 2016 by European Commission proposals for new rules on EU gas supply

security and new rules for energy agreements between EU and non-EU countries” (*Energy Production and Imports Statistics*, 2017).

The European approach has strengthened diversification strategy of Russia, concentrating on the East Asian market. Western relations and growing demand in China have played a vital role in the Sino-Russian energy cooperation.

Russia and the East Asian Energy Market

The scope of Sino-Russian energy cooperation is quite wide given the dynamic of mutuality. Their needs compel them to cooperate with each other. The initiatives of Russian government to develop Siberian and Far Eastern region needs external support, financial and technological advancement which boost economic inflows, diminish unevenness of growth and diversify energy export and import. Moreover, Russia is extending energy supply to the Asian Pacific energy market which boosts Russian energy price in the international market. Availability of huge energy resources makes Russia as an energy player and its supply establishes sustainability in the energy security of China. It has significant role in the Chinese manufacturing sectors which offer constant efficiency in the Chinese economy. This region heading to growth with the enormous Chinese investment. Russia considers the Chinese energy market as a major opportunity for energy supply. Russia frequently interacts with the Chinese leaders to broaden energy cooperation. Cooperation with China enlarges the scope of Russian energy market for further improvement. East Asia has a huge market for Russian natural energy and “Stage-by-stage construction of the gas pipeline system in the Eastern Siberia and Far East for the purpose of gas supply to the countries of the Asia-Pacific region, first of all, to the Republic of Korea and China, with the possibility of connection, should it be economically efficient, to the unified system of gas supply, will be performed in the context of implementing the program of the unified gas supply system formation in the Eastern Siberia and Far East.” (Ministry of Energy of the Russian Federation, 2010:79). Russian energy has a huge and wide space in the Chinese market as well as open the door for the Japanese and Korean energy market. These countries have developed their manufacturing industries vastly using large quantities. Thus, they concentrate on Russian energy to maintain growth. Russian

energy exports have been strengthening the energy security of China. Sino-Russian energy cooperation has also been enhancing the position of Russia in the East Asian energy market.

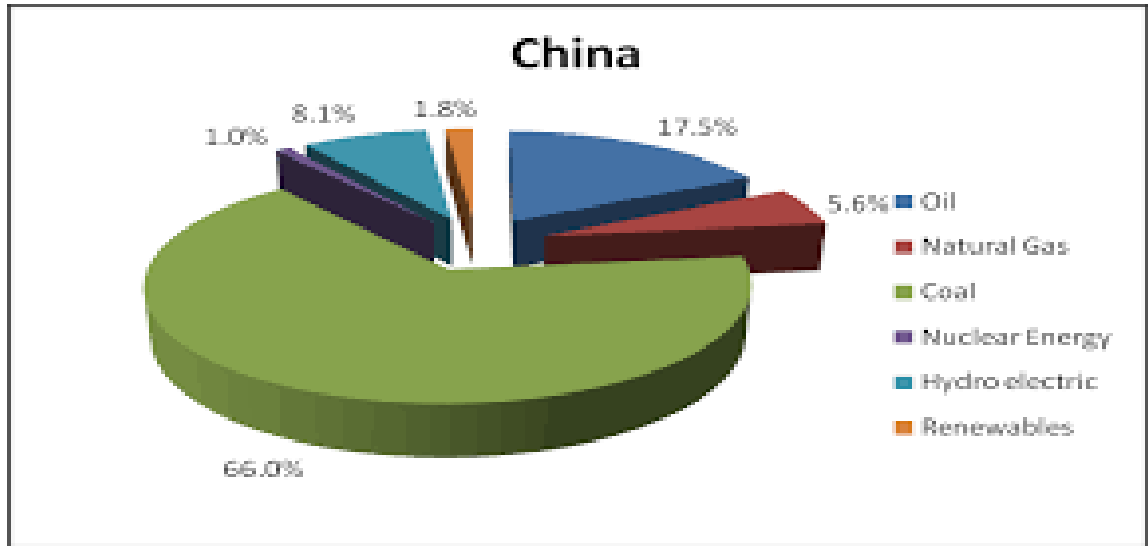
3.4 Sino-Russian Energy Cooperation: Challenges

Sino-Russian energy cooperation has its impact on their economy, trade, energy security and also maintenance of ecology in the region. The energy cooperation has significantly broadened bilateral relations. China's high demand for energy played a key role in its emergence as one of the biggest energy importers of Russian energy resources. There is no doubt about advantages of this cooperation, but the cooperation has also some challenges which hinder energy cooperation. There are various issues that emerged affecting energy cooperation. Generally, though China signs a deal to ensure energy supply for long term, market's twists and turns create an uncertainty in the partnership. Some other factors such as construction of pipeline, price fixation and, investment as well as global interests that have been affecting the bilateral cooperation. In the realm of energy cooperation, China primarily stresses on the regular supply of oil and gas, because of low domestic capacity of energy source. With limitations such as geopolitical intervention, complexity of implementation of energy reform, Chinese and Russian governments spent considerable time to reach at mutual agreement which required a series of bilateral talks at different levels. These agreements, provide stability, security and, substantiality. Consequently, the ecological implications of Sino-Russian energy cooperation demand extra attention from both in the years to come.

Role of Oil in the Cooperation

Energy cooperation between China and Russia spread across various phases. China actively engaged with Russia during 1999 - 2005. They had signed several agreements to improve energy collaboration but, limited access to oil fields due to lack of infrastructure caused low supply of oil but Chinese investment which is motivated by energy demand ready to tackle all these challenges.

Figure 3.2 China's Energy Consumption Mix, 2014



Source: *An Outline of Global and Chinese Energy Development 2015: 10*

The above-mentioned Figure 3.2 shows that oil had occupied second position in the Chinese energy consumption mix in 2014 underscoring its need. In the current period, Russian oil industry witnessed several challenges such as crude oil extraction, storage and transportation system. Though China has Daqing oilfield where transportation system is still in progress mode, lack of energy pipeline construction and China's cumulative energy demand influence Chinese energy diplomacy to concentrate on Russian energy resources. Gradually, it made Russia one of the first preferences for energy imports. China expanded the transportation system between the two states which enabled access to Russian oil fields to meet its crude oil demand. It ensures supply of crude oil to Daqing industries. Chinese oil industries launched essential technological reform in Russian oil field which has improved speed and quality. In spite of the technical assistance, China could not get crude oil as per demand from Russia due to Russia's financial condition. Therefore, China had to give loans to Russia, which has helped the latter to maintain supply system of crude oil. During the global financial crisis during 2008-2010, China emerged as economic power house and arranged financial help to Russian energy companies for survival. Russia was widely supported by Chinese finance, in return Russia has supplied oil according to extracting capacity. The financial back up has further deepened energy cooperation between China and Russia besides strengthening the bilateral relations and revitalizing

economic growth in Russia. The trade relations have also touched new heights accelerating the expansion of energy cooperation. Two main oil pipelines were established between China and Russia - One in the East Siberia-Pacific Pipeline first stage completed in late 2009, it is 2,757 Km long, construction started in 2006. Its diameter 48 in (1,220mm), capacity marked 80 million tonnes. In this phase, 32 pumping stations were built and its second phase was to be completed by the end of 2010. The Eastern Siberia Pacific Ocean's length is 4,188 km. Its main aim is to supply oil to East Asian oil market like China, Japan and Korea. Its construction was done under the supervision of Transneft company. It has completed two stages, in first term it was expended From Taishet to Kozmino, it crosses through Kazachinskoe, Skovorodino, Perevoznaya region. Its second phase was completed by December 2012, later in 2014 some more progress was made, with three-pumping stations were set up to increase the capacity. Additionally, an agreement was signed between Rosneft and Transneft to construct a pipeline branch from ESPO to Komsomolsk Refinery. In 2010, Sino-Russian energy cooperation reached a new height linking Mohe to Daqing. Other significant development includes the establishment of oil refinery by Rosneft and PetroChina.

Map.3.1 Refinery in Northeast China and Far East Russia.



Source: Rosneft, <https://www.rosneft.com>

The newly established refinery has a capacity to “process 13 mln tonnes (95 mln barrels) of oil, of which 9 mln tonnes will be from Russia. The oil will be delivered by tankers to the port of Tianjin and from there via a 42 km pipeline to the refinery. Light product yield will be in excess of 80%. Target markets are Northern China and regions of the country’s Central Plateau, including Beijing, Tianjin, Hebei province, Changzhi, Jinan and Shandong province, as well as the Eastern Chinese seaboard.” (Rosneft 2017). In 2010, this project began to operate in Nakhodka city of Russia after getting all clearances from the company board. Its “capacity is 3.4 mln tonnes, consisting of naphtha and liquefied hydrocarbons from the Komsomolsk and Achinsk refineries and also from the Angarsk Petrochemical Company. The new plant will specialize in production of polymers (polyethylene and polypropylene) and will also produce a number of other petrochemical outputs. The project includes construction of a dedicated sea terminal for delivery of output for export. Principal markets will be the Russian Far East and countries in South-East Asia, particularly China” (Rosneft 2017). In this region, China plans to establish an oil refining chain. The joint venture between CNPC and Rosneft aims to secure oil supply to China for long time. On the other hand, Russia receives investment for the development of energy infrastructure. Both sates have successfully inked various agreements to address shortage of oil supply and thus deepen energy cooperation.

Natural Gas Field

Russia has huge stocks of natural gas which is crucial the Sino-Russian cooperation. According to National Bureau of Statistics, “during 1995–2000, 2000–2005 and 2005–2011, the annual growth rate of natural gas consumption in China was 6.67%, 13.80% and 18.69% respectively, and reached 25.61% in 2007 and 21.50% in 2011, showing a trend of rapid increase.” (Kang, 2014). The West-East Pipeline Project (WEPP)’s main aim is to provide gas supply to the China’s western region. This project consists of four pipelines which connect China’s eastern market to western sources and accelerate sustainable development in these regions. In 2002, construction of the WEPP 1 was initiated and finished in 2004 and it began to operate from 2005, and in 2009 its capacity was increased. The WEPP 2’s construction started in 2008 in western region and was completed by 2009. The western part of this pipeline connects Xinjiang to Shaanxi and in the eastern part it

links Shaanxi to Shanghai. Its length is about 8,704 km, which passes through fifteen provinces. It is considered as one of the longest pipelines for natural gas supply. It costed about \$22 billion and transmission ability is 30 bcm, durability is a minimum of 30 years.

There is a clear pattern noticeable in the Sino-Russia energy cooperation from 2008 to 2017. Russia was eager to increase gas exports to China but China wants to dominate in energy cooperation to achieve own interests. So, Russia enlarged energy cooperation with China but with care. Three factors impact the dynamics of energy cooperation between China and Russia. First, China wants to control Russia's gas field but Russia does not allow. Second, price negotiation, China wants to import gas at lower tariffs but Russia views that natural gas price should be higher than what is agreed. Third, China's energy diversification policy has wide scope, in other words, China has scope of gas imports from West Asia, Africa, Central Asia. In spite of the above-mentioned factors, China and Russia had signed some significant gas deals. In 2014, China-Russia has inked an agreement for thirty years, worth US \$ 400 billion. This gas deal is very significant for both. According to Russian president Vladimir Putin, it is "the largest in the gas sphere during the era of the USSR and Russia". (Macalister 2014)

Energy Reform

The energy cooperation between China and Russia also faces the challenge of energy reform especially after Crimean episode which led to Western sanctions, which affected the Russian core institutions and sectors. With the isolation of Russia, energy supply has drastically slowed down which raised the necessity of reforms to improve energy supply. Russia focuses on energy reform to facilitate energy cooperation with China. In this context, two issues are relevant as Shaolei posits. "Firstly, there is no need to exaggerate the value of the theory of energy curse... whether the countries with huge amounts of natural resources must be detached from the market. Many countries that are rich in natural resources such as Norway, Canada, and Australia have made great achievements in the development of their market economy. This is to prove that resource-abundant countries can also make use of the market mechanism to some different degrees. Secondly; any market-oriented reform needs certain political conditions, especially the peaceful external political conditions. It is hard to imagine that a major country will be able to advance the

open and to some extent risky market-oriented reform satisfactorily in an external environment full of hostility.” (Shaolei 2015). Following this broad observation, Russia initiated a number of reforms in its energy sector to rejuvenate Sino-Russian energy cooperation.

Price Determination

For China, the issue of energy price is “compounded by two other uncertainties related to its energy policy. The first concerns the timing and intensity of the gasification program announced by authorities; the second question is whether China will opt for importing gas by sea or by land. Currently, one LNG plant is operating, two others are under construction, and several more could be installed if this dilemma is solved in favour of liquefied gas. The inland option would require the construction of pipelines capable of transporting gas over long distances.” (Fernández, 2011:1072). The debate on energy price determination has created serious questions impacting energy supply as well as bilateral relations. Both countries are accentuating the settlement of energy purchase because energy access has series of consequences like energy extraction, utilisation of infrastructure, construction of pipeline, projection of energy plans, establishment of mechanisms for further growth. Sometime, there is also a lack of consensus on certain projects which affects cooperation, “Over the past decade, the waxing of China’s interest and the waning of Russia’s interest in finalizing agreements for these pipelines is due to several factors, including the fall and rise of world oil prices and the inability of both countries to agree on oil and natural gas pricing formulas. Russia’s use of energy exports and pipelines as a foreign policy tool, mutual mistrust between the two countries, struggles between Russian energy and transportation companies for control over energy deliveries to China, and a lack of understanding by energy officials and companies in both countries about how their counterparts operate” (Downs 2010:147) are some of the complexities involved in the process. Russia’s main concern includes supply of crude gas, oil and other necessary energy resources which are more than determined price under agreement. The transportation of energy is a complicated issue which creates obstacle in the execution of energy projects.

Partnership with China brings stability to the Russian economy. Therefore, Russian government negotiates with China over the energy price. In 2014, Chinese government signed agreement to secure energy supply for long term at lower tariff, particularly in coal sector. “Price is undoubtedly a factor with Russian anthracite coal having a landed price in China of \$101.25 a tonne, well below the \$129.71 of Australian cargoes. Price is also a factor in the other area of Russia’s coal success in China, namely coking coal. Chinese imports from Russia have jumped 108 percent to 3.14 million tonnes in the first eight months of 2017 from the same period a year ago, with the August landed cost at \$119.96 a tonne. This is well below the \$153.12 a tonne for Australian cargoes” (Reuter 2017).

Energy Strategy

With the increasing consumption of energy, new strategies are being proposed to deepen the cooperation between the two countries. In 2009, Ministry of Natural Resource issued strategy for new energy which stresses on the establishment of an optimistic approach to the projection of Russian energy exports to East Asia. It also predicted energy sales to increase 11-12 percent between 2013 and 2015; then it would further enhance to 16-17 percent during 2020-2022 and further it will cross 19-20 percent by 2030. In this context, Sino-Russian energy cooperation does not have a clear strategy which can directly shape cooperation. Even at present time, China and Russia could not succeed in formulating a common energy strategy, because of divergent national interests. Both have their own compulsions. Russia looks at energy cooperation as a long-term relationship which would develop infrastructure in the Far Eastern region. On the other hand, China’s current rapid energy consumption requires huge quantities of energy at lower prices. Both countries have also launched strategies for diversification of energy sources and market but there is no concrete policy.

Though China’s energy diplomacy does not depend only on Russia, it is placed in an important position among the energy supplying countries of China. Russia is a reliable energy partner of China because both need each other for their energy requirements. Chinese government evolved a fairly comprehensive energy strategy to address the existing challenges and goals which include reform in energy security policy, implementation of innovative ideas and advancement of technology to reduce low-carbon, conservation of

ecology, stressing on diversification, fulfilment of energy demands, striving to secure energy supply system. The core of Chinese strategy is mutual benefit, active engagement in international energy talks to strengthen cooperation with global energy players. It campaigns for preserving energy. It also plays a significant role reducing energy consumption. It directs the pattern of energy consumption in industrial sectors as well as intervention of science in enhancing energy efficiency, energy utilisation, recycling process of energy and, energy infrastructure arrangements. The core concept of energy cooperation is mutual benefit but at the same time their own interests impact the energy deals.

Exports and Imports

China emerged as one of the largest energy consumers at the global level but its domestic capability of energy source is comparatively less than its demand. Particularly, “China is a major force in oil markets, and the gap between rising demand of 11.5 million barrels per day (mb/d) in 2016 and falling production of 4 mb/d has made China the largest oil importer in the world.” (IEA, World Energy Outlook 2017: China, 2017). Its growing consumption and utilization rate compels China’s import of oil and gas from Russia and other countries. “World Energy Outlook-2017 includes a special focus on China, where economic and energy policy changes underway will have a profound impact on the country’s energy mix and continue to shape global trends. A new phase in the country’s development results in an economy that is less reliant on heavy industry and coal.” (IEA, A World in Transformation: World Energy Outlook 2017, 2017). China’s oil consumption increased import level at 64.4 percent in 2016 which is more than past year and experts also estimate that it will increase in future. According to CNPC Institute Economic and Technology’s Report, “2016 output of China's two largest oilfields, Daqing in Heilongjiang province and Shengli in Shandong province fell by over 5 million tons compared with 2015. Daqing posted crude oil production of 36.56 million tons and Shengli 23.9 million tons, this is a decline of 1.826 million and 3.2 million-ton compared with 2015.” (Xin, 2017).

China’s cumulative energy demand is doubling in less than two decades. “In 2004, Chinese oil imports totalled 3.40 million barrels a day (m/bd). Today, the PRC consumes approximately 7.85 m/bd. It is estimated that China will increase oil its imports to as high

as 13.50 m/bd by 2020, and 16.10 m/bd by 2025.” (Hayward, 2009). Its current consumption rate is higher than the expectations. To control skyrocketing energy demand, China is implementing innovative energy policies which play a vibrant role in addressing rapid consumption rate of energy. China’s maritime route of energy passes through Malacca Strait from West Asia, Central Asia and Africa. This route adds financial burden and security pressure on China. Sino-Russian energy cooperation reduces some of these risks and significantly enhances energy security of China.

Implementation of Sino-Russian Energy Cooperation

Implementation of energy cooperation needs to deal with several issues which influence Russian supply system and energy security of China. Both have their own priorities, motives behind establishing energy cooperation which determine the execution of energy strategy. China’s rapid mounting demand of energy is putting dual pressure on its economy and climate. This situation has pushed China to import natural gas where Russian energy supplies are considerable. Russia has capability to supply energy resources as per demand but slow implementation of energy cooperation hinders the export and import efficiency. Both states need joint implementation of projects and a comprehensive and policy which can broaden energy cooperation.

Geopolitical Interventions

Russia and China are active players in international politics. “The strengthening of China-Russia ties in the post-Cold War period means both countries are paying greater attention to each other's core interests and concerns, as well as their geopolitical strategic cooperation and economic exchanges, as part of their efforts to rise above the China-Soviet Union relationship, which was bogged down by Cold War mentality and geopolitical entanglements” (Sun 2017). Since 2008, Russian domestic economic conditions have given chance to other global players to intervene in the Russian internal and external affairs. Sino-Russia energy relations have also been affected by global economic crisis, sanctions on Russia. In this context, mutual cooperation between China and Russia shows a strong and bold partnership. The energy cooperation includes features of mutual support in the field of political and economic decisions which prepare a wide platform for further expansion of energy cooperation.

In the beginning of 1960s and 70s, Russia had very close cooperation with some of the European countries and had a thriving energy cooperation. The geographical proximity between Russia and European Union enabled them to forge robust political and economic collaboration. But different political and international interests guided them to support different international priorities which weakened bilateral relation as well as energy cooperation. Thereafter, Sino-Russian energy cooperation experienced several twists and turns partly because of the external players. It starts with Ukraine crisis which began in 2013 when Ukraine's President could not withstand the military intervention of Russia. "Russia's reaction on a possible Ukraine closeness to EU could be explained by having in mind the close and durable economic and political relations between the two neighbouring countries. Ukraine has been considered as part of Russian influence but its support ended with the annexation of Crimea from June 2014." (Poladian and Drăgoi 2015). Further, annexation of Crimea led to external intervention in Russia. European Union, United States and other Western countries-imposed sanctions which are primarily of three kinds: "a ban on the provision of technology and equipment for deep-water, Arctic offshore and shale oil and gas exploration; a ban on mid- and long-term credit to Russian oil companies and state banks; and travel bans for prominent Russians considered to be involved in the annexation of Crimea or close to President Vladimir Putin." (Overland, 2017). On the imposition of sanctions, China took a neutral stand but with time it "tilted moderately towards the Russian position on Crimea. On 6 June 2014, the Secretary of the Russian Security Council and former Director of the Federal Security Service, Nikolai Patrushev stated that China and Russia had arrived at a common understanding of the Ukrainian crisis and in February 2015 the Chinese Ambassador to Belgium, Qu Xing, expressed support for the Russian point of view and encouraged the West to end its quarrel with Russia (Overland, 2017). It was indirect support of China to Russia. Recently China had signed various agreements with Russia which reduce the impact of Western sanction on Russia.

Though the present geopolitical atmosphere widely affected Russia, Sino-Russian energy cooperation is deepening. According to energy experts such as Lin Boqiang, Wang Jianliang, Li Junchen and Anishchuk Alexei, energy cooperation would advance energy infrastructure, stabilise economy as well as provide confidence and ensure prosperity of

Russia. One of the most significant positive outcomes of Sino-Russian energy cooperation is that it positions Russia as a global energy player.

Summary

Sino-Russian energy cooperation has two key components, opportunities and challenges. Both countries approach energy cooperation rather differently. China is developing rapidly which necessitates vast supplies of energy and Russia has abundant natural resources to supply. Energy supply has significant role in the growth of infrastructure development in both the countries. At present, Sino-Russian energy cooperation is robust. A major change unfolded in the international market after global economic crisis opening new vistas of energy cooperation that helped some of the East Asian Countries like China, Japan and Korea.

It is this context that paved the way for a robust energy cooperation between China and Russia. Both promoted their domestic as well as international interests. The cooperation is made easier by geographical proximity, bilateral economic complementarity and win-win approach. Though Russia is not a member of OPEC, it has a major place in the international energy market. This is one of the reasons that fostered Sino-Russian energy cooperation. As China's economy is growing, demand for energies is also accelerating. China understands the existing condition of Russia, which works positively for Chinese energy market. China wants to collaborate with Russia but on its own terms, constantly holding dialogues with Russia for lowering price of oil and gas.

Despite these issues, both countries cooperate with each other and broaden energy cooperation. Russian pivot to Asian market targeted mainly China, China's energy demand also pushed China to invest in Russian energy sector. Russia's Far Eastern region which shares border with China with huge natural resources is one of the main factors in Sino-Russian energy cooperation. Chinese financial support to Russia stimulates overall growth of Russian energy infrastructure, and prosperous society. Sino-Russian energy cooperation has distinctively encouraged mutual cooperation. Despite numerous challenges, China and Russia deepen bilateral relations, promoting high level political, economic and technological partnership. Frequent high-level talks do address some of the major challenges faced in the Sino-Russian energy cooperation.

Chapter-4

Sino-Russian Energy Cooperation: Role of Multilateral Organizations

4.1 Introduction

Multilateral organisations do play a vital role in the development of cooperation between two countries. They do facilitate positive outcome for energy cooperation. They also tend to give equal importance to both sides, exporting as well as importing nations. They act like connecting nodes, resolving issues between two nations, prepare a common ground for negotiation to find appropriate solution for them to enhance their relations. “Multilateral organisations play a significant role in promoting shared interests between energy producers and consumers. At a minimum, they could facilitate information sharing between governments and reassure both producers and consumers regarding the policy intentions of other parties. More ambitiously, they could help integrate global energy markets, by setting standards for national energy policies, lowering transaction costs and reinforcing the transparency of international markets. They may also help address energy market volatility, by providing a forum in which governments can collectively anticipate future market conditions and negotiate energy policies that respond accordingly. Given the benefits of energy interdependence for both producers and consumers, intergovernmental cooperation through multilateral energy organisations could make a significant contribution to global energy governance.” (Wilson 2014). Thus, multilateral organisations are established mainly to “obtain their funding from multiple governments and spend it on projects in various countries. (uniteforsight 2018).

In the Sino-Russian energy cooperation, multilateral organisations such as Shanghai Cooperation Organisation (SCO) and Brazil, Russia, India, China, South Africa (BRICS) provide a robust platform for negotiations and agreements. One of major members of SCO and BRICS, China seeks mutual support from other members as Chinese President Xi Jinping reaffirmed at the 18th SCO summit: “China will seek peaceful coexistence, common prosperity, shared aspiration, and win-win cooperation. We should promote open and inclusive cooperation for win-win outcomes. We should reject self-centred, short-

sighted and closed-door policies. We should uphold WTO rules and support the multilateral trading system so as to build an open world economy” (Zia2018)

Against this backdrop, the second section focuses on the significance, functions, and role of SCO in the Sino-Russian energy cooperation. It also highlights major challenges and achievements of the organisation. The third section examines the role of BRICS in the energy cooperation between China and Russia. Major conclusions of the chapter form part of the last section.

4.2 SCO: Sino-Russian Energy Ties

The SCO founded as “Shanghai Five” in 1996, with the signing of treaty on ‘Deepening Military Trust in Border Regions.’ It was named as Shanghai Five because it consisted the following five founding members- China, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan and established headquarter in Shanghai. The strategic relations of China and Russia crucially are shaped through this organisation.

In 2001, Shanghai Five was expanded and renamed as SCO after the inclusion of Uzbekistan. Currently this organisation consists of the following eight members including India, Kazakhstan, China, Russia, Kyrgyzstan, Pakistan, Tajikistan, and Uzbekistan. It was formed for “strengthening mutual trust and neighbourliness among the member states; promoting their effective cooperation in politics, trade, economy, research, technology and culture, as well as in education, energy, transport, tourism, environmental protection, and other areas; making joint efforts to maintain and ensure peace, security and stability in the region; and moving towards the establishment of a democratic, fair and rational new international political and economic order.” (SCO 2018). The members of the group agreed upon certain common rules and regulations to strengthen cooperation and to pursue “an open alliance and joint position, as well as solving regional and global problems on the basis of mutual interests. Russia and China have maintained cooperation in fields such as “multilateral security and energy,” but have different understanding of American influence, restraining NATO's proceeding the East, and expansion of member countries' issues.” (Yun and Park 2012) The SCO also provides equal legal framework for the group partners. It has also set the following provisions.

- “The status of Partner is granted to a state or an organisation who shares the goals and principles of the SCO and wishes to establish relations of mutually beneficial partnership with the Organisation.
- The status of Partner is granted to a state or an organisation who cooperates with the SCO in specific areas of activity envisaged by the Charter and other treaty documents in the framework of the Organisation.” (SCO, Regulations on the Status of Dialogue Partner of the Shanghai Cooperation Organisation 2008)

The SCO has also put in place legal, financial and, termination of membership provisions. Firstly, “2.2.1. a) Meetings of heads of ministries and/or departments of the SCO member states responsible for areas of cooperation outlined in the Memorandum; b) Meetings of working groups, commissions of senior officials and other mechanisms set up by the SCO member states with the aim of conducting cooperation in areas being the subject of partnership; c) Scientific and expert meetings (forums, conferences, workshops), days of culture, festivals, exhibitions, contests, sports competitions and other activities related to areas being the subject of partnership. Second, during the activities envisaged by paragraph 2.2.1. of the Regulations, the Partner is entitled to make statements on issues being the subject of partnership, to receive documents and materials circulated among participants of the activities (provided these documents and materials are not for limited circulation), to circulate their materials and documents with the consent of the SCO member states. Third, at the Partner’s request and with the consent of the member states of the Organisation the text of a statement of its official representative or documents envisaged by Paragraph 2.2.2. of the present Regulations can be posted on the website of the SCO Secretariat, the SCO Regional Economic Cooperation website and/or the website of the Regional Antiterrorist Structure of the SCO (hereinafter referred to as the RATS) together with other materials of a relevant activity.” (SCO, Regulations on the Status of Dialogue Partner of the Shanghai Cooperation Organisation, 2008).

China and Russia are very active members of this group. Both are considered as a driving force of the SCO. Both countries actively participate in the interactions of the organisation. The SCO has been playing a significant role in the deepening of bilateral relations between China and Russia. It has established a conducive atmosphere to sign long term agreements

for cooperation. The SCO become an umbrella organisation for Sino-Russian bilateral relations which has strengthened their long-term cooperation. Further, energy has emerged as binding element for the two countries. Russia promotes energy cooperation as a fundamental element in its foreign policy which helps in the stability of state security. Russia has friendly bilateral relations with the all the members of SCO. In the context of China, SCO promotes important deals which integrate its economy with the region. It also expands bilateral relations which ensures reliable and durable energy partnership. They do ensure that their bilateral issues do not affect the functioning of SCO. For example, China and Russia have differences over tariff rates but they do not bring them to SCO. In fact, it encourages both the nations to strive for mutual agreement which is advantageous for both. SCO consists of two kinds of members. Those who consume energy more than what they have and others who produce more than domestic usage. China is the biggest consumer of energy and Russia is a huge supplier of energy. SCO provides a mechanism to facilitate smooth energy trade among the member states.

There is no doubt that the role of SCO is critical in deepening the energy cooperation between China and Russia but it has some limitations. The SCO has certain obstacles which make it difficult to implement agreements. Moreover, there are divergent views on certain agreements creating a challenging situation for SCO. Further, the SCO has also experienced challenge of external pressure in the decision-making process. The dominance of China and Russia also creates challenge for the organisation.

China is key member of this organisation which initially planned to establish and convert it into as a major collective and regional organisation. Given its own concerns in its domestic context and the region, it encouraged the process of making common laws and regulation for members which primarily address the extremism in the region, terrorism and ethnic separatism. Noticeably, China has called ‘Strike Hard’ campaign in the Xinjiang region and “targeting cell phones, computers, and religious materials belonging to ethnic minority Uyghurs, an exile group, and local residents” (Kashgary2014). It is a step to encounter increasing extremism in this region which is supported by Central Asian countries, Afghanistan, Pakistan, and Turkey. China’s main aim is to prevent extremism and also reduce the external support to Uighur community. The same issues worried other

‘Shanghai Five’ members. For instance, Russia has also the same concerns toward the separatist activities of Chechnya, and the Islamic group’s activities in the border of Russia and Uzbekistan, and Caucasus.

In June 2017, during Astana summit India and Pakistan were given membership. “In this regard, they noted that India and Pakistan fulfilled the memorandums of commitment to obtain the status of SCO member state dated 2016 and approved the decisions of the SCO Heads of State Council on granting them the status of SCO member state.” (The Astana Declaration of the Heads of State of the Shanghai Cooperation Organisation 2017) Therefore, current full members are eight including China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India and Pakistan. Observer states are Iran, Mongolia, Afghanistan, and Belorussia and there are also dialogue partners which include Turkey, Nepal, Armenia, Sri Lanka, Cambodia as the map below showing geographical location.

Map 4.1 SCO Members, Observer States and Dialogue Partners



Source: <https://southfront.org>.

In addition, there are guest members who are invited to participate in the SCO’s summit. The Association of Southeast Asian Nations (ASEAN), and the Commonwealth of Independent States (CIS) belong to this category.

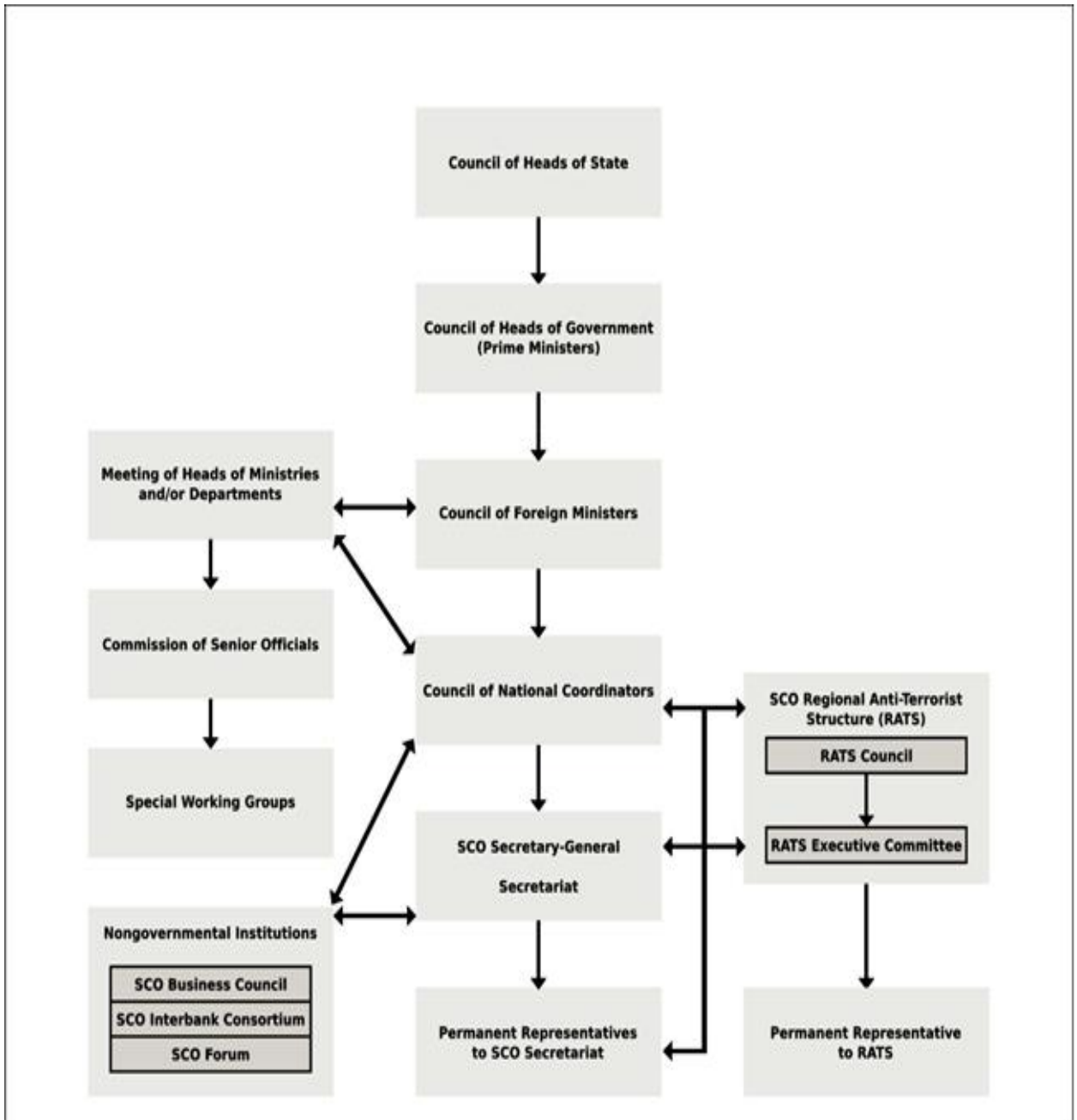
The SCO maintains cooperative framework like other regional organisations. It strikes a balance between regional and international players. The organisation initially set certain principles which have helped in the deepening of cooperation. Its main objectives are as follows:

- “To consolidate multidisciplinary cooperation in the maintenance and strengthening of peace, security and stability in the region and promotion of a new democratic, fair and rational political and economic international order;
- To jointly counteract terrorism, separatism and extremism in all their manifestations,
- To fight against illicit narcotics and arms trafficking and other types of criminal activity of a transnational character, and also illegal migration;
- To encourage efficient regional cooperation in such spheres as politics, trade and economy, defence, law enforcement, environment protection, culture, science and technology, education, energy, transport, credit and finance, and also other spheres of common interest.” (Service, Briefing European Parliamentary Research 2015)

Structural Features of SCO

The SCO has been systematically structured to facilitate mutually beneficial outcomes of agreement and cooperation. The council of Head of state makes the key decisions of the organisation. The position rotates every year, gives opportunity to lead the organisation to eligible candidates of all eight-member countries. The Council of Heads of Government organises the annual summit. Ministers of the council and State coordinators meet frequently. Chinese and Russian are chosen as official languages. The SCO has two permanent sections. First, a secretariat body which looks after the administrative and technical work of the organisation under the supervision of Secretary-General. Second, it also formed Regional Anti-Terrorist Structure (RATS) which is governed by Council and Executive Committee. The structural description can be understood with the help of the figure given below.

Figure 4.1 Structure of SCO



Source: *Shanghai Cooperation Organization Mapping Multilateralism in Transition no. 2.*

The extensive framework of the organisation enables it to channelize the work of the group smoothly. The SCO developed as an influential and cooperative organisation in the

contemporary global politics. Its dynamic structure and legal procedures have a key role in the functioning of the organisation and also in the development of multilateral cooperation.

The SCO reached a stage where it could set new goals for the development which can boost long-term strategy to address the emerging regional challenges. Therefore, the SCO follows certain goals and objectives:

- “Strengthening mutual trust and good-neighbourliness between the member states;
- Strengthening the SCO as an effective, regional organization;
- Ensuring regional security, countering challenges and threats to the security of the member states, including emergency prevention and relief;
- Enhancing trade, economic and investment cooperation, as well as of joint project activities in priority areas of cooperation aimed at sustainable development of the member states and improved welfare and living standards of their population;
- Expanding cultural and humanitarian ties, inter alia, in science and technology, health, environment, education, and developing communication between people;
- Consistently implementing the principle of SCO openness pursuant to the Charter and other legal documents of the Organization;
- Enhancing SCO’s international prestige and, to this end, building cooperation with the United Nations and its specialized agencies, as well as with the CIS, CSTO, ASEAN, ECO, CICA and other international organizations and associations;
- Strengthening the SCO institutional foundation, including enhancing the role of the permanent representatives of the SCO member states to the Secretariat and the

Regional Anti-Terrorist Structure (RATS) of the SCO.” (SCO Development Strategy of the Shanghai Cooperation Organisation until 2025, 2015)

These objectives and goals provide a blueprint for the organisation. They cover all aspects of development such as economy, politics, trade as well as security.

Sino-Russian Equation in the SCO

There is a historical background to the Sino-Russian cooperation in the SCO. Before the disintegration both were maintaining close relations. Both resolved their border issues, their approach to Vietnam-Cambodia. The disintegration of Russia into fifteen republics

had created a need for of regional organisation to evolve a multipolar world and deepen bilateral relations with China.

The global financial crisis emerged as challenge to China, Russia, as well as SCO. The SCO positively responded to this issue during the meeting of Heads of States in 2009. China also came forward to cooperate with other members of SCO. It enlarged the scope of financial investment to ensure further deepening the relations among the members. In 2012, World Economic Forum highlighted the economic challenges like major systemic financial failures; chronic fiscal imbalances; external volatility; recurring liquidity crisis, severe income disparity and negative consequences of regulations. The crisis has vastly impacted SCO's member countries like Russia and Central Asian countries. So, SCO factored these issues and framed strategy to address them.

In addressing the economic challenges, the SCO has implemented various projects which can arrange sufficient funds for the development. But due to lack of mutual and coherent mechanism in the organisation and the dominance of China and Russia in the financial allocation did not allow these projects to fructify. In addition, the SCO faces difficulties in resource generation to enhance productivity of multiple projects. Thus, the SCO decided to implement these projects at bilateral level.

Trade and Investment

The SCO encourages the trade and investment within the organisation but the group members face the issue of tariff rates. The unevenness of economies and exports among the members creates unnecessary burden on the revenue. In this direction, transportation of goods, capital and labour force are constricting cooperation within SCO. No doubt, there is ongoing procedure for the development of Free Trade Zone but due to lack of cooperation, it is moving very slowly. There is also a strong opinion against the implementation of Free Trade Zone. Free Trade Agreement would help China to advance the investment for infrastructure development in regions like Russia's Far Eastern region. It encourages the technological as well as financial investment which can improve the quality and quantity of production. Many scholars like He Weiwen firmly believe that "the establishment of an SCO free trade zone will enhance industrial production capacity, cooperation between SCO members, by establishing a free trade zone, trade would be also

greatly facilitated between countries along the One Belt and One Road route in Central Asia and the Gulf region.” (Putz 2016). Chinese Premier Li Keqiang said “China suggests trade liberalization should be steadily promoted and the negotiation and signing of an agreement on SCO trade liberalization should be accelerated. A feasibility study for the SCO free trade zone should be carried out at an appropriate time to establish a systematic arrangement for regional economic cooperation,” (Hu 2017) On the other hand, Russia also looks optimistically at Free Trade Zone. Russian Prime Minister Medvedev expressed his commitment to “develop all possibilities for economic cooperation, establish favourable conditions for the movement of goods, labour, services and investment, form added-value chains and enter markets abroad – in each other’s countries and beyond.” He then went on to add: The transition to a preferential trade regime within the SCO is a complicated matter given that any preferential regime always requires renunciation of internal decisions of one kind or another. We have agreed to continue our work in this area. All member countries’ business and financial communities should be fully involved in this work, primarily through the SCO Business Council and Interbank Association.” (Quoted in Putz 2016) The proposed regime provides a systematic mechanism which can connect regional infrastructure to industrial infrastructure. Financial support, arrangement of work force enhances regional growth and maximize production.

Energy Resources

Energy availability and its export and import always remained a contentious subject among the SCO members. Energy partnership provides positive outcome for China and Russia enabling the utilisation of energy resources and pipelines for development. SCO has a significant role in the enhancement of energy deals, providing a platform for negotiations. It has crossed various challenging phases like the global economic crisis when unpredictably price had fallen. Energy exporters immensely lost considerable revenue. The SCO members were also affected by this crisis because it includes many exporting members. The instability of energy market has worsened the situation affecting energy cooperation. Sino-Russian energy cooperation also suffered as both are major players of SCO.

The SCO has provided a number of opportunities for coordination among the members and encouraged to develop mechanisms to manage infrastructure growth in the region. China and Russia have taken various steps to enlarge cooperation in the export and import of energy. Russia also strove to develop a coordinating mechanism at global level to improve price of energy. SCO offered to assist the international energy players to address common concerns and encourage cooperation in the field of energy its annual SCO summits. China and Russian have significantly deepened cooperation as ‘President Putin told reporters “China is Russia’s strategic partner. We enjoy mutually beneficial, mutually trusting, operation in all fields’. In a joint declaration with President Hu, it was agreed that the military presence along the Sino-Russian border would be reduced as well as significantly enhancing cooperation in the fields of energy, space exploration and civil aviation.” (Yigit 2012:20)SCO promotes energy cooperation among the member states in the same direction as International Energy Agency (IEA) does at the global level. “IEA considers that energy security can be improved through:

- * promoting diversity, efficiency and flexibility
 - * remaining prepared collectively to respond to energy emergencies
 - * expanding international co-operation with all global players in the energy markets.”
- (Yigit 2012:12)

The SCO not only enlarges the energy market, establishes coordinating mechanisms, and ensures energy supply, improvement of energy efficiency but also it has framed provisions, rules and regulation to standardise market for energy which can constantly stimulate mutual cooperation for investment, infrastructure and technological development.

Role of SCO in the Sino-Russian Energy Cooperation

The SCO is primarily established on the principle of mutual cooperation, benefit, equal participation, consultation, respecting cultures of member countries. “China and Russia have led the efforts to safeguard regional security through close strategic cooperation within the framework of the SCO. A relationship of mutual trust and promotion, enhanced by the strategic partnership of coordination between the two countries, has enabled them to facilitate and advance various measures within the organization, which in turn has

enabled the steady and solid development of the SCO.” (Xing 2018) Its policies and decision-making procedure support mutual benefit which encourage cooperation in the organisation and lead toward growth. It discusses regional issues of the member countries and strives to find common path of development. It pays special attention to the issues of security, sovereignty, and development. The SCO members are encouraged not to enter into alliance with other multilateral organisations that work against them. Every member supports others in securing territorial sovereignty. Equality in the organisation makes it easy to take decisions. It also helps in the settlement of political, social, economic and diplomatic issues. The cooperation among the members creates opportunities for all states. Especially, “The ‘Shanghai Spirit’, as the founding value of the SCO, features mutual trust, mutual benefit, equality, consultation, respect for cultural diversity and pursuit of common development. As all SCO members are located along the ancient Silk Road, the organization can synergize with the Belt and Road Initiative, so as to catalyse growth and integrate more economies. The ‘Shanghai Spirit’ has offered a template for a new kind of cross-border cooperation” (Pan 2018).The SCO has certain core aims to strengthen relations at regional level. Under the supervision of SCO, China and Russia agreed on various essential issues. The SCO energy club was formed primarily to enlarge cooperation between Chinese and Russian energy industries and also address the challenges at multilateral dialogues. They support projects “through active communication and learning from each other build a new type of relations between major countries and have made important contributions to the healthy development of the international landscape” (Chengcheng 2018) As major players of the organisation, a number of policies were inspired by China and Russia. Both countries contribute twenty four percent of the total budget of SCO.

Energy Club of SCO

The energy resources have a fundamental place in the organisation. The organisation’s members share three fifths of total Eurasian market, population capacity of this region estimated more than 1.5 billion. Energy capacity of the group members is estimated at “about 25% of global oil reserves, over 50% of gas reserves, 35% of coal and about half of the world’s known uranium reserves” (<http://infoshos.ru>, 2015).The idea of Energy Club

was first introduced by Russian president Vladimir Putin in 2006. Since 2006, leaders of the organisation discussed and formed mechanisms to set up a structure during Bishkek Summit Russian President Vladimir Putin highlighted the importance of establishing SCO Energy Club. “He said it would create additional opportunities for implementing promising energy projects between the SCO member states, observers and partners”(http://infoshos.ru, SCO Energy Club: structure ready for international interaction, not Shanghai Six’s elite club, 2015). In 2011, SCO launched the Energy club with the establishment a senior working group for energy club. Further, in 2013 SCO energy club was established in Moscow. The concept of energy club was prepared by Russian Academy of Science. It accentuates the development of structure of energy club with the appointment of a number of energy experts. The Energy structure provisioned tasks for Core members, Observers and Dialogue partners. These members can get information regarding the agenda and club measures to representatives of countries that are included in the composition of the international organizations with which the SCO has cooperation agreements. It gives out “information to the worldwide energy community as well using mass media to provide the possibility to participate in Energy Club activities.” (Golobokov2015)

With China’s rapid demand for energy growing by leaps and bounds, the establishment of energy club provided an opportunity for China to acquire energy resources from the SCO members. The cooperation with SCO countries is considered very promising for future growth of energy market of China. Energy-rich countries like Russia and Central Asian countries ensure energy security. Sino-Russian energy cooperation is not only bilateral but participation in the SCO opens up new opportunities for multilateral support.

The growing Chinese energy market makes it necessary for China to broaden participation in the organisation. It promotes openness of energy club, encourages government interaction to deepen cooperation. Frequent meetings among SCO members provides solutions for Chinese energy market. The increasing Chinese energy consumption attracts Russia to build strong relations with China because Central Asia has also huge energy resources. If they succeed in establishing strong foothold in the Chinese energy market then Russia will face serious crisis. So, Russia is deeply engaged in the energy cooperation with China. In 2014, the cooperation marked stable condition signing gas deal at an

estimated US \$400 as Kin Zhi (director of the China's economic Development Ministry) said "raw materials, oil, ore and timber, represented 80% of the trade turnover between China and Russia. In May 2014, Russia's Gazprom and China's CNPC finally signed a historic gas deal that will provide the world's fastest growing economy with the natural gas it needs to maintain pace for the next 30 years." (Golobokov2015) The gas deal includes purchase, sale, technical advancement, intergovernmental cooperation and timeline. Thus, Chinese energy security is closely intertwined with the SCO members. The energy club is working on five crucial factors which would widen the scope for trade in energy resources.

- "Bolstering the cooperation in the nuclear sphere through the energy club.
- Promotion of hydro-energy cooperation through the Energy Club.
- Mechanical and power engineering sphere development.
- Expansion of financial and institutional contacts in the energy sphere.
- Creation of unified information field in the energy sphere." (Golobokov 2015)

These areas are very crucial for the stability of SCO. They lead to structural transformation of the organisation. The structural reform makes energy club central to Sino-Russian energy cooperation. Presently, it coordinates the multilateral trade and bilateral relations. The energy club has also a key role in the development of energy cooperation among the member states. The following strategy is adopted to strengthen energy cooperation:

- "Modernization of existing generating capacities and power grids;
- Development of transport infrastructure in the region;
- Joint development of new hydrocarbon fields and geological exploration;
- Creation of conditions for mutual access to electricity markets and its transit;
- Energy saving and energy efficiency;
- Training and advanced training of energy specialists." (<http://infoshos.ru>, SCO Energy Club: structure ready for international interaction, not Shanghai Six's elite club , 2015).

These are various areas which improve cooperation and also resolve differences and initiate new projects. In the long term, the energy club needs political support for some milestone decisions like price, development of transportation system, tariff, common tax system, balance between export and import.

Therefore, some SCO members advocate that energy club “should be harmoniously included in the sphere of the SCO member states’ inter-government relations, including the setup of a system of regional security and its important component, energy security. Given the ongoing instability of the global economy, the SCO’s proactive energy policy would play an important role in ensuring sustainable growth of the organization’s member states and would also become a positive factor in the global economy.” (<http://infoshos.ru>, SCO Energy Club: structure ready for international interaction, not Shanghai Six's elite club , 2015).

Challenges: SCO and Sino-Russian Energy Cooperation

The SCO participants occupy a substantial geographical space of the world with huge energy resources. It includes world’s two most populated countries, China and India. Some of them have major military capabilities with serious implications for regional security.

Some of the challenges that SCO has been facing include “religious extremism, ethnic separatism and international terrorism; improving trust and cohesion among members; better managing relations with external parties; developing an enlargement policy; improving policy implementation; facilitating greater economic interaction; and improving their slow pace of decision making.” (Grainger 2012). To address these challenges, the organisation has to improve reliability, trust, close friendship, negotiation frequency, economic integration, and most importantly enhance robust leadership.

Challenge of Extremism, Separatism, and Terrorism

Of these, extremism, separatism, and terrorism are the most critical challenges affecting SCO and they also impact bilateral relations as well as energy cooperation between China and Russia. Since 2001, SCO has been trying to address these issues. It defined these challenges in the document as follows:

"Extremism" means an act aimed at violent seizing or keeping power, and violently changing the constitutional system a State, as well as a violent encroachment upon public security, including organization, for the above purposes, of illegal armed formations and participation in them, criminally prosecuted in conformity with the national laws of the Parties.

"separatism" means any act intended to violate territorial integrity of a State including by annexation of any part of its territory or disintegrate a State in a violent manner, as well as planning and preparing, aiding and abetting such act, and subject to criminal prosecuting in accordance with the national laws of the Parties;

"terrorism" means any other act intended to cause death or serious bodily injury to a civilian, or any other person not taking an active part in the hostilities in a situation of armed conflict or to cause major damage to any material facility, as well as to organize, plan, aid and abet such act, when the purpose of such act, by its nature or context, is to intimidate population, violate public security or compel public authorities or an international organization to do or to abstain from doing any act, and prosecuted in accordance with the national laws of the Parties;" (The SCO on Combating Terrorism, June 2001). In 2008, the SCO has termed these issues as "three evils" that adversely affect regional security of the members of the organisation. In the present context, they continue to be a serious challenge for all members. The current SCO Secretary General Rashid Alimov stated that "The threat of extremism is an urgent issue and must be removed without delay. We are witnessing an upsurge of extremist crimes all over the world. Countering this destructive phenomenon is a critical task of the entire international community," (SCO, SCO Secretary-General: "The threat of extremism must be removed without delay, 2017). Therefore, the SCO members exchange intelligence information, and promote cyber security. While addressing cyber security issues on the "the 10th anniversary of the SCO, its participants paid special attention to the relevant goals and tasks of developing information support to the SCO's activities and to expanding cooperation between its member states in counteracting cyber threats, which pursue criminal, terrorist and military-political purposes." (<http://infoshos.ru>, SCO responds to cyber challenges, 2011). The establishment of joint military, police unit, to respond swiftly to extremism, separatism, and terrorism was undertaken. The establishment of strong network of information exchange quickens the task of physical joint force to counter "three evils". In this way the SCO deepens security framework among the members which in turn strengthens cooperation.

Expansion of SCO

After more than fifteen years of its existence some of the members felt the need for expansion. Thus, efforts were made to expand the membership of the organisation. The SCO'S structure has provision for three kinds of members -full time, observer, and dialogue. The SCO has documented the process of member expansion of the organisation. As regulation says "interested state that wants to join SCO should be in Euro-Asian region, it should have diplomatic relations with all SCO active members, it also should have observer's or partner's status, to develop trade-economic relations with SCO members as well as it should not be under sanctions of UN Security Council. Considering security issues and international responsibilities of country-observers they have to be alongside with international agreements and other SCO documents. Beside this Regulation, a country-applicant must not be in military conflict with other state or states." (Berdibaevich 2015). The enlargement debate reflects the unique political culture of the SCO. The dominant members like China and Russia's individual interests make expansion process more complicated. According to China, expansion of the "organization as a first testing ground for promoting China's interests through a multilateral platform in which China was the strongest (Gabuev 2017)" but other member's decision also impacts this process. Recent enlargement of SCO, during 17th summit "The heads of state underscored the historical nature of granting full membership to the Republic of India and the Islamic Republic of Pakistan. In this regard, they noted that India and Pakistan fulfilled the memorandums of commitment to obtain the status of SCO member state dated 2016 and approved the decisions of the SCO Heads of State Council on granting them the status of SCO member state." (SCO, The Astana declaration of the Heads of State of the Shanghai Cooperation Organisation, 2017). India's participation provides some political opportunity for China to enter into India-led organizations such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) or the South Asian Association for Regional Cooperation (SAARC). China's membership in these organizations could dilute India's position as well as its influence in the region." (Desai 2017) On the other hand, Pakistan's full membership is important for Russia as its recent relations deepen and "after the meeting between PM Abbasi and Russian PM Medvedev on the sidelines of the SCO meeting, both expressed satisfaction with the evolution of bilateral relations including

defence cooperation. Other cases in point include Russia's recent support for Islamabad's positions on membership in the Nuclear Suppliers Group and terrorist sanctuaries on the Afghan side of the Durand line. Islamabad's SCO membership will provide an opportunity to expand this bilateral relationship through the SCO platform, especially in the defence sector" (Zeb 2018).

In terms of Sino -Russian energy cooperation, dominance of both countries enables them to put forward their interests and decision. Both countries have regional issues with, and opportunities in, India and Pakistan. The enlargement of India and Pakistan ensure regional security and also reduce pressure of "three evils" as well as a large market for manufacturing products and energy resources. Thus, this enlargement has potential benefit for both the members. However, to be able to expand SCO further and make it a successful proposition, "China and Russia should strengthen communication and coordination, firmly observe the "Shanghai Spirit," boost solidarity among the SCO members, maintain regional security and stability, promote pragmatic cooperation, so as to constantly enhance SCO's influence in the international and regional affairs." (Liangyu 2017).

Challenge of Finance

The SCO members have been adversely affected by the economic crisis of 2008. Russia was also affected by the financial crisis of 2014. But, Chinese economy has been quite stable. In the Chinese economic development architecture energy plays a vital role where Russia and other countries in the region do ensure its energy security.

The various projects of SCO like building of highways, installation of pipelines, transmission of energy, and other plans require huge financial support. The SCO has been facing the following major financial challenges.

- "The Partner shall bear all the costs of its participation in the SCO events.
- Issues of financial contributions by the Partner to the SCO's exhibitions, days of culture, festivals, competitions, sport events and other similar events shall be governed by the Memorandum.

- The costs related to expert evaluation of the SCO's joint multilateral projects participated by the Partner, as well as other costs agreed by the parties, shall be covered in accordance with the Memorandum.
- The funds of the non-governmental institutions operating under the SCO shall be used for partnership in accordance with the regulations of these institutions.
- Financial involvement of the Partner in the implementation of the SCO joint economic project shall be governed by the respective documents concluded in each separate case.” (SCO, Regulation on the Status of Dialogue Partner of the Shanghai Cooperation Organization, 2002).

These rules significantly shape financial issues of SCO. The establishment of Bank of SCO has huge potential. But Russia remains “opposed to this and its opposition is preventing the creation of what appears to be a much-needed mechanism for financing multilateral projects, managing FDI, increasing funds for investment and better realising the economic potential of member countries. Such a bank holds great promise, however, the timeline to realise such an advancement is currently undefined and this initiative has unrealized potential. To make this work the bank would not want to be primarily indebted to China.” (Grainger 2012). The SCO bank would have various positive outcomes. First, with the “creation of the SCO Bank, China has sought to tie the economic development in the Eurasian landmass with its strategic goals for the region. Second, the SCO Bank could quickly emerge as a competitor to the BRICS New Development Bank, given Russia's immediate interests in its neighbourhood. Third, the prospect of the SCO Bank becoming a conduit for Russia-China efforts to jointly project economic power in the Eurasian Economic Union (EEU) will ring alarm bells in Western capitals.” (Sukumar 2016). It remains to be seen how the establishment of SCO Bank would unfold in the future.

Issues of Leadership

The SCO faces challenge of leadership because of dominance of two countries. Historically, the maximum members were previously part of the erstwhile USSR. They share common border with Russia, also have cultural similarities language and identity. So, there is general perception of the leadership of Russia. On the other hand, China was the main force behind the establishment of SCO and this has more say. Despite this “The Shanghai

Cooperation Organization (SCO) led by China has lately grown its profile, affirming itself as a robust multilateral architecture in Eurasia. The grouping has picked up its propulsion in the recent years against the backdrop of (a) Russia's resurgence and destiny as a Eurasian power and (b) China's rise and expansion in Eurasia"(Stobdan 2008). There is a strong claim for leadership of SCO from both sides. In fact, SCO is dependent on China and Russia working together, building trust and sharing their points of views with greater transparency. They need to comprehend the mutual benefits they can enjoy by coming together to grow a strong, non-interfering, yet trusting base for its four smaller partners to build from. This growth will take time and needs strong leadership from these two economic giants if to realise the SCO's full potential."(Grainger 2012). Cooperation among the members provides various opportunities for economic substantiality, energy security and infrastructural development and regional cooperation. A great sense of optimism, therefore, exists about the SCO; there is also a stronger commitment by China to provide a leadership role, a vision, resources, and diplomatic skills to mobilize and sustain the grouping."(Stobdan, 2008).

There are other issues such as decision making and its implementation, USA and NATO's involvement, which pose challenge to SCO and its role in the Sino-Russian energy cooperation that need to be addressed in the years to come.

4.3 BRICS and Sino-Russian Energy Cooperation

BRICS consists of Brazil, Russia, India, and South Africa. The organisation has started meeting annually since 2009. It has broadened the cooperation among members by increasing areas such as "economy, trade, finance, business, agriculture, education, health, science and technology, culture, think tanks, and friendship cities. Cooperation mechanisms such as the New Development Bank, Contingent Reserve Arrangement, Business Council and Think Tank Council have been established. Pragmatic cooperation has gone to greater depth to yield more fruitful results and exerted important influence globally." (BRICS, 2017). It has established a significant platform for the development of the group. Its members occupy "26.46% of world land area, 42.58% of world population, 13.24% of World Bank voting power and 14.91% of IMF quota shares." (BRICS, 2017). BRICS aims to accomplish the following objectives:

- “Coordination in meetings and international organization; and
- The development of an agenda for multisectoral cooperation among its members.” (<http://brics.itamaraty.gov.br>, 2017).

Its members have made great contribution in the realms of energy supply and demand. Presently, BRICS is a significant multilateral organisation with members who have substantial role in the international energy market. “BRICS provides a perfect division of labour in the energy sector. Russia and Brazil are key exporters while China and India are the consummate consumers.” (Sahu 2016). BRICS also plays vital role in various issues such as climate change and renewable energy resources.

China and Russia provide a strong base to BRICS and also enable it to achieve its major objectives. It strives to offer a stable platform for cooperation on energy. “The energy narrative of BRICS has flown smoothly since its first Summit, held in Yekaterinburg, Russia in 2009. The joint statement of 2009 stated that BRIC supported the diversification of energy resources and supply, the security of energy transit routes; the creation of new energy investments and of new energy infrastructure, including the linkage between energy producers, consumers and transit states” (Rao Vaid 2016). BRICS 2013 saw the issues of cyber security and terrorism discussed in the wake of US snooping revelations and terror-related violence in China.”(Rao Vaid 2016).It also acts as counter to other organisations. Thus “one of the prime outcomes of the BRICS Summit 2016, (October 15-16, Goa, India) was setting up of three working groups by the Indian government; on counter-terrorism, cyber security and energy security.

China actively participates in the BRICS organisation, enlarging relations primarily to ensure following aspects “energy security, energy statistics, energy markets (coal, oil, gas, renewables, and energy efficiency)” (Sahu 2016). Russia has also been active in BRICS. It plays a key role in strengthening energy cooperation. “The long-standing cooperation covers a large range of areas such as energy security, energy efficiency, energy statistics, energy policy reviews and energy technologies. Relations involve a broad range of public and private stakeholders in Russia. Russia maintains its position as one of the world’s most important energy players continuing its essential role in global energy supply and holding among the world’s largest resources of gas, oil and coal.” (Sahu 2016).

Therefore, as a multilateral organisation BRICS has also crucial role like SCO, coordinating between energy producer and consumer countries. The BRICS members have established strong relations in the realms of economy, power, security, which enable to counter the challenges arising from various quarters. Its format provides scope for ensuring China's energy security and deepen Sino-Russian energy cooperation. "Robust energy industry-related relations among BRICS countries complement producers and exporters on one side and importers and suppliers on the other, creating a perfect atmosphere for win-win deals that could bridge the demand-supply gap among the bloc members," (Zheng 2017). BRICS is very active in promoting cooperation among its members. It has "proposed action plans to facilitate investment in 2014, and the G20 summit agreed on the guiding principles for global investment. The Chinese market also benefits its BRICS partners in many sectors, such as consumer goods from South Africa and Russia." (Ren 2017).

4.4 Summary

The basic principle of a multilateral organisation is to deepen and strengthen the existing and future relations within the members of the group. Multilateral organisations such as SCO and BRICS which framed provisions for the members of the organisation to be effective agents of cooperation.

Principally, the multilateral organisations focus on the existing conditions, challenges and future development. The dynamic strategy toward the bilateral and multilateral approach of the organisation aims to achieve substantial changes in the member countries. The SCO implemented the procedure of openness to enlarge the organisation. These organisations have been striving to establish various financial institutions like "the New Development Bank (NDB) – aimed at the financing of infrastructure projects and sustainable development in emerging economies and developing countries – and the Contingent Reserves Arrangement (CRA) – which has the goal of promoting mutual support amongst the BRICS members in situations of instability in the balance of payments." (<http://brics.itamaraty.gov.br>, 2017). The financial institution enables China as well Russia to address situations like economic crisis of 2008 as well as slowdown of energy supply

due to lower price like of 2014 which vastly impacted Russian economy and energy cooperation with China as well as European Union.

The SCO is a regional organisation to address “three evils”. It focuses on issues such as energy security, economic efficiency, military power at global level. Its primary task is to broaden cooperation. These objectives have strengthened the SCO as security organisation. In addition, it actively involved in the political and commercial issues. With rapid development of the SCO, BRICS became a vital supporter of SCO, enhancing energy cooperation between China and Russia. The SCO primarily endorses strong security within the organisation.

The SCO has been addressing various issues pertaining to Sino-Russian energy cooperation. It maintained a fine balance between both the countries in the organisation to herald strong bonding in the realm of supply of energy. In the final analysis, despite various challenges from different quarters both the SCO and BRICS deepened Sino-Russian energy cooperation.

Chapter-5

Conclusion

During 2008-2017, Sino-Russian energy cooperation has witnessed various renewed opportunities and challenges. This study focused on how both the countries have been benefiting from such cooperation while uncertainties continue to persist. Active involvement of multilateral organisations such as SCO and BRICS act as a stimulator for strengthening bilateral relations at multilateral level.

China-Russia bilateral relations have some fundamental factors which bind the two states. There are various core fields of cooperation such as energy, economic, and political which have a lot of potential to sustain their relations. Predominantly, the Sino-Russian energy cooperation depends on China's extensive growth of industrial sector. Further, both evolved a policy that determine the dynamics of energy security. From 2014, a new trend of energy export has been noticed in the Russian desire to change export destination. Thus, Russia began to shift from Western to Eastern energy consumers. This trend attracted China toward Russian energy sector. The current supply of energy has grown by 3.9 percent compared to 2015. China's collaboration with Russia ensures its energy security. This cooperation is getting equal support from both sides because of its complementary nature which benefits both. Their mutual interest makes it a "win-win" partnership. The energy cooperation is flourishing due to geographical proximity though it is not totally detached from international energy market and economy.

Russian energy market faced several challenges due to unstable nature of international energy market which had lowered the price of energy particularly in 2008 and similarly in 2014 when Russia experienced a strong inflation. In 2008, global economy had collapsed, lowering the price of energy but at same time one positive thing happened for Russia wherein China emerged as a reliable partner. China mainly helped Russian economy by importing energy resources. These events set their relations on an even keel. They had inked several fundamental agreements on energy cooperation that have helped Russia to overcome its economic crisis. On the other hand, China's skyrocketing economic and

industrial growth stabilised substantially, but it has given birth to imbalance in the bilateral trade. The primary phase of cooperation based on the exchange of raw materials like crude oil and gas has promoted a stable supply system. Mutual interests established a dedicated relationship which has stabilised, expanded, and strengthened energy cooperation.

Chinese energy security become a vital part of its domestic and international policy. As China become the largest energy consumer at global level it began to seek a reliable partner like Russia which could ensure energy supply. This is the main factor that shaped the direction of their relationship. As a result, they signed various milestone agreements during 2008 - 2017. In all these agreements a common goal has been the enhancement of energy supply. Russia also actively participated in the energy cooperation with the aim to attract investment from China to develop its infrastructure. This cooperation has had a series of talks, high level visits, exchange of official documents to ensure sustainable energy cooperation. The frequent engagement between the two countries enhanced mutual support which had helped them to tackle challenges like territorial dispute, sovereignty and other such issues. In spite of various uncertainties, China and Russia have established a stable and a strong relationship for energy cooperation. The nature of cooperation is mutual where China mainly imports crude oil, gas and timber from Russia and on the other hand Russia imports manufactured goods and advance technology.

The Chinese leaders have evolved a positive approach towards energy cooperation with Russia. They also believe that energy partnership has been ensuring the amount of energy that is needed by Chinese manufacturing industries. They view that both countries should respect their sovereignty for future enhancement. The Russian perspective on the Sino-Russian energy cooperation is largely aimed at significant advantages which play a major role in its economic growth. China has been contributing to the Russian economy since the disintegration of Russia. It has clearly noticed a trend after global economic crisis (2008) when Russian economy completely relied on the energy diplomacy with EU and China. Most important trend noticed in their strategies is that both are giving priority to the development of infrastructure. This helps them to invest in the construction sector namely pipeline, communication development services and advancement of technology to extract

and transport crude energy. The common approach toward each other catalysed promulgation of policies which in turn played a vital role in the energy cooperation.

Thus, China and Russia's divergent interests enabled them to develop a common approach for energy cooperation which has been stabilising them as strong energy players at international level. China's worries are minimised to a large extent after establishing a strong relationship with Russia. It provides confidence about energy supply which fundamentally boosts China's energy security. This cooperation is relying on "win-win" diplomacy. Sino-Russian energy cooperation widens scope and inspires other Asian countries like Japan and Korea to develop energy cooperation with Russia.

China and Russia have a long history of trade relations. The bilateral trade faced various twists and turns from the nascent phase but they constantly engaged in processes and took their partnership to a higher level. Their bilateral relations began with very low chance of growth but by fulfilling certain basic requirements such as mutual respect and benefit backed up to endure energy cooperation its dynamic potential has boosted sufficiently into energy partnership. Research studies elucidate that trade in energy resources will steadily increase. In the long term, the expansion of infrastructure network would ensure easy transmission. The trade and investment sectors of the two countries envisioned that Sino-Russian energy cooperation acts as catalyst in their domestic and transnational advancement. Despite asymmetrical nature in the cooperation, it gives enough amount of space to Russia where it successfully explored many possibilities to achieve a substantial growth of the economy. Even in the current international energy cooperation Sino-Russian energy cooperation secured a decent place which bind them together after 2014. Russia finds considerable scope for cooperation with China and other east Asian countries. Therefore, it has initiated several measures to enhance cooperation with China.

At present, their bilateral relations are being dynamically transformed. The volume of trade was more than \$ 80 billion in 2017. The General Administration of Statistics observed that of trade is growing with every passing year. However, there are certain issues that complicate the bilateral relations. Firstly, it was annexation of Crimea which led to the imposition of sanctions by European Union. Secondly, collapse of Rouble which has created economic crisis in Russia. It not only influenced international energy market but

also Sino-Russian energy cooperation. Thirdly, China's ambitious project One Belt, One Road which aims to invest extensively in the development of infrastructure which would connect and reduce energy transmission time as well as reduce the price. Lastly, mutual cooperation created a very warm atmosphere for new initiatives like advancement of technology, high-tech machinery to extract energy.

As a result, both are engaging actively to promote free trade agreement, which would offer China the much needed access to Russian energy, but Russian experts continuously negate this agreement because it will allow China to dump its goods in the Russian market. Additionally, duty-free trade would significantly affect Russian revenue generation process. Yet, China and Russia are developing a suitable network of pipelines and freight railways which has the capacity of high speed transition. These transition route networks' main aim is to connect the capital cities of both the countries.

Cooperation with China enabled Russia to recalibrate its energy diplomacy. As result, Moscow has brought in various vital changes in its foreign policy and strategies which attract investment in the energy sector. A case in point is China-Russia energy deals. The energy deals stimulate close cohesive bilateral relations with Beijing. Both partners promote frequent bilateral negotiations at the multilateral level where they debate upon on their opportunities as well as challenges which are blocking the path of energy cooperation as well as seek energy deals. These developments help them to deal with external pressures that have been slowing down the normal pace of bilateral deals.

Russia's development reflects a long history of struggle. It weathered through several crises - economic, political, social and cultural. In 2008, The international economy experienced an economic breakdown which had stricken down Russian economy very extensively. The crash of energy prices at international level affected exports and investment from other international players. A similar episode took place with the annexation of Crimea. It has slowed down economic growth of Russia. Russian currency Rubble had fallen to one of its lowest levels. Trade and investments in the Russian domestic projects were severely affected. But Russia has been starting to overcome this situation with the Chinese government's help. At this time, China's friendly approach to Russia has meant a lot for

Russia forging strong ties with the Russian energy company Gazprom and other companies like Rosneft, Transneft Yamal LNG and Novatek. These Chinese investments have had considerable positive impact on the Russian economy.

On the issue of annexation of Crimea, United States, European Union and Other Western countries imposed sanctions on Russia. This imposition banned the transfer of deep-water technology and equipment, prevented Russia to explore in Arctic and mid-term financial investment in Russian State banks and oil companies; travel bans on Russian officials of President Putin who are involved in the annexation. These external interventions hugely affected Russia. It also slowed down Sino-Russian energy cooperation but gradually China supported Russia with financial investment. Recent US \$400 billion gas deal provided a robust support to the Russian energy sector. China and Russia managed to handle the external pressure which has created hindrances for Sino-Russian energy cooperation.

In this context, both turned to the multilateral organisations. Multilateral organisations have been playing a substantial role in the China-Russia energy cooperation. Both nations have membership in the multilateral organisations like SCO and BRICS. China and Russia played a crucial role in the evolution of SCO. The Chinese view SCO as an organisation which has been playing a significant role in the economic integration. It has been effective in the enlargement of economic ties among the members of the group. It also ensures economic security and energy security of the members. Further, it helps in the establishment of deep relations with energy-enrich countries like Russia. The Russian perspective on the establishment of SCO is that it assures strong relations among the members of the organisation providing regional security. SCO plays a key role in the energy sector, setting a platform for energy club which frames energy strategy for SCO members factoring the mutual concerns and promotes numerous energy projects. These projects aim at ensuring energy security of the member states. Energy club synthesises views of various official departments, research institutions and commercial groups in the formation of common strategy for the enhancement of energy cooperation. Energy club is designed to strengthen cooperation between supplier and consumer partners like China and Russia. It coordinates between energy companies and States, providing a platform to

resolve the concerns. The goal of energy club closely coincides with Sino-Russian energy cooperation that provides fundamental base for further cooperation. It has envisioned openness and transparency for legal and economic issues, developing mechanisms for continuous supply of energy among the members of the group. Therefore, the functions of energy club are compatible with the SCO's functions. SCO also framed policies and strategies to resolve contentious issues among the members including China and Russia. Both countries dominate the organisation and promote economic integration and take care of regional security. Both have shown commitment to mutual cooperation for sustainable growth as well as widen the scope of the organisation.

Similarly, in the BRICS, China and Russia play a leading role. Practically, both countries have been at the forefront of various projects to accomplish their national interests. China participates in the group discussions, engages with the members to strengthen economic cooperation and energy ties. A significant initiative like the establishment of New Development Bank to develop infrastructure and facilitate easy export and import process is a case in point. The contribution of multilateral organisation such as SCO and BRICS is critical to partnership in the field of energy.

The core of cooperation lies in the stability of economy. Principally, China and Russia have a very positive approach toward this cooperation given their political and economic interests. Economic assistance for those in crisis, particularly after the imposition of sanctions over the annexation of Crimea, Russia looks at its cooperation with China as a key for its economic stability. Despite several challenges in the energy, both have been striving to implement suitable strategies that could enable them to forge strong economic relations.

As a result, the trade between the two countries, though is asymmetrical, has been growing. China's dynamic industrial growth necessitated large quantities of energy resources forcing China to concentrate energy imports. Since 2008, China has increased import of energy from Russia despite several twists and turns. Gradually, with close economic ties, Russia

started to rely on China as a reliable source of advance technology, textile products, electronic equipment, fabricated metals and, high-tech products.

The uneven relations in various sectors including energy influenced economic systems of both countries. It is a well-known fact that China rapidly became the largest exporter in the international market. Additionally, it has a huge domestic market of manufacturing products. Over the years, the Sino-Russian interdependency increased. Both have been relying on each other. Russia found a suitable market for its energy resources in China, which, in turn, provides stability to Russian economy. Additionally, China provides loans to Russia for the purpose of energy infrastructure.

In fact, political relations between China and Russia have been strengthened by a robust energy cooperation. It also directs trans-border relations. Both have strategic commonality to resolve challenges and broaden political interaction to ensure sustainable economic growth and energy security. China and Russia developed mechanisms to promote regular dialogue which provides better chance to evolve a common approach to find solutions and a 'win-win' approach from both sides. From 2008, Russian energy resources became a focal point of Chinese government and thus launched several key projects in Russia to import Russian energy resources. Energy cooperation between China and Russia included the construction of a network of pipelines to expand the supply system. China has aggressively broadened its relations with Russia after the 2014 economic crisis. On the issue of annexation of Crimea, China was neutral in the beginning, but with the worsening situation it began to support Russia and gradually China signed numerous agreements to provide loans in return for regular energy supply to China.

Multilateral organisations have also been at the heart of Sino-Russian relations. Both have permanent membership in the United Nations Security Council. Furthermore, China and Russia have membership in several multilateral organisations, particularly in the SCO and BRICS which facilitate regional energy and economic security.

China and Russia consider energy cooperation as a key component in their bilateral relations. With the dynamic development of Chinese manufacturing sector, growing demand for energy makes energy a fundamental element of its policy. Inadequacy of energy resources makes it all the more imperative to diversify energy imports. China

continuously consolidates energy tie ups with Russia. To ensure energy security China established a number of institutions such as CNPC, NEA which forge cooperation. These institutions operate under NDRC, which formulates provisions and policies. It also deals with issues related to energy price fixation. Further, MOFCOM regulates domestic and external energy markets. Since 2008, NEA has been governing energy sector. Its main task is to promote energy projects and determine energy prices.

In the final analysis, the Chinese government finds Russia as a promising energy supplier with huge energy resources. Sino-Russian energy cooperation also fits with the Chinese strategy of diversification of energy imports. Moreover, it reduces China's dependency on West Asia. Russia's existing economic condition attracts China to invest in its energy sector which has been contributing to the Russian economic growth.

Thus, Sino-Russian energy cooperation has been playing vital role in ensuring China's energy security and establishing Russia as an energy player at the international arena. It remains to be seen how Sino-Russian energy cooperation would unfold in the years to come.

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